

American Artisan

and Hardware Record

Sheet Metal Work-Warm Air Heating

Vol. 26, No. 4

CHICAGO, JANUARY 28, 1928

\$2.00 Per Year

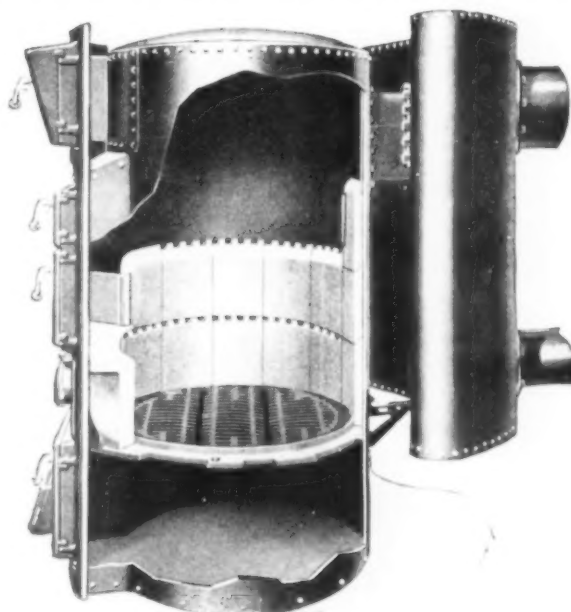
LAND MORE JOBS IN 1928 WITH THIS POPULAR HEATER

SALES on SUCCESS Heaters last year showed a big gain over the sales of any preceding year. And as we enter 1928, prospects for SUCCESS Heater sales look even more promising.

This increasing popularity is not at all surprising. Ask the dealer who sells SUCCESS Heaters and he will tell you that this heater is superior to other makes in construction of fundamental features and in design. Ask the user and he will say that the SUCCESS furnishes his home with clean, healthful and adequate heat at low cost.

The SUCCESS Heater line is just what you need to get your full share of the heater business in 1928. The line is unusually complete, with a size and model for every purpose, enabling you to go after more jobs. Write us today for more information about this line and for details about the SUCCESS Heater plan for helping dealers get more business in their communities.

SUCCESS HEATER MFG. CO.
DES MOINES, IOWA



Cut-out View of SERVICE Heater

Notice the following features in the cut-out view of the Standard Service Heater:

1. The grates, the method of placing the crowned surfaces and the heavy grate rings to which they are attached.
2. The heavy connecting collar and the bracket supporting the radiator.
3. Cupola brick fire-pot with the opening at the top of each row of bricks for admission of preheated air to mix with the gases at the point of combustion.
4. Note particularly the heavy, durable appearance of the heater throughout.

[The SUCCESS Standard Service Heater is made of ARMCO Iron from the best heater material available.]

SUCCESS HEATER
BUILT LIKE A BOILER RIVETED SMOKE-TIGHT



Announcing~

The

1928

ROYAL Furnace

New Features - New Colors

"IT'S BETTER - IT'S DIFFERENT - IT'S A ROYAL"

The 1928 ROYAL embodies improvements of appearance and operation

THE waist-high grate shaker handle—sturdy and durable—is precisely balanced to give easiest operation of the grates. Improved grates of the rocking, clinker-crushing type permit the use of any grade of fuel.

Every ROYAL is handsomely finished in gold-brown and gold—every one fit for the show window. Their appearance appeals to the builder, realtor and home owner, and presents a beneficial selling advantage for you.

The streamline design of the one piece cast radiator presents the largest amount of effective heating surface. It offers least resistance to the upward travel of warm air.

The one piece feed section is unusually large, affording the space positively necessary for oxidizing the hot gases to secure complete combustion and fuel economy.

The slip-on panel fronts lock quickly and easily into place without cement or bolts. They positively prevent gas or dust leakage to the furnace air chamber.

The 1928 ROYAL Dealers' proposition is attractive and means more profit for you through reduced selling resistance. Write for it, as well as for our catalog.

HART & CROUSE CO.

UTICA, N. Y.



Boston

Chicago

Columbus

Cleveland

Detroit

New York

Philadelphia

Washington, D. C.



This to This

and here's the reason: The Carburetor, placed between the combustion dome and the radiator mixes heated air with the unburned gases and *burns the smoke.*

CAN you conceive of thick, black clouds of smoke quickly changing to a thin, gray haze and then vanishing?

You don't have to imagine it. You can *see* it done. You can do it yourself!

Fire a SUPERIOR SUPER-SMOKELESS Warm Air Furnace with the cheaper grades of soft coal until the black smoke belches forth from the chimney. Then open the Carburetor door. In an inconceivably short time the chimney clears and you can *see* the smoke being burned by the *secondary combustion*—apparently the impossible!

If you can sell furnaces, you can sell *more* of these, with ample profit on every sale.

The SUPERIOR SUPER-SMOKELESS Furnace lends itself so well to an actual, *visual* demonstration of its remarkable gas-and-carbon-burning principle with either soft or hard coal that many sales result. Write for full particulars—how *you* can make money from our Sales Demonstration Plan.

Utica Division
Richardson & Boynton Company

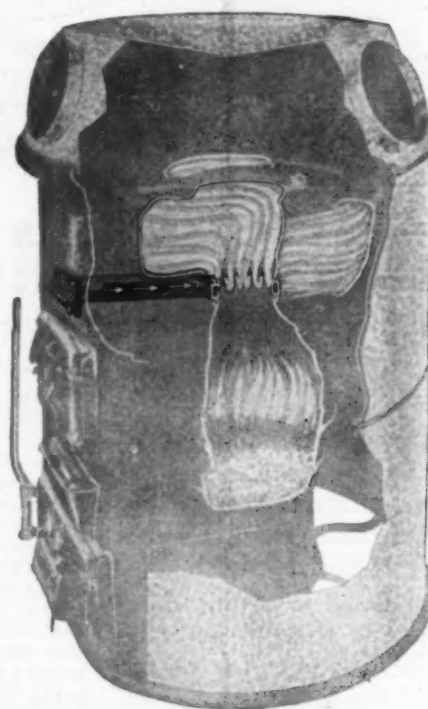
Successor to Furnace Department

UTICA HEATER COMPANY

UTICA, N. Y.

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Chicago Office: 3639-45 S. Ashland Ave.

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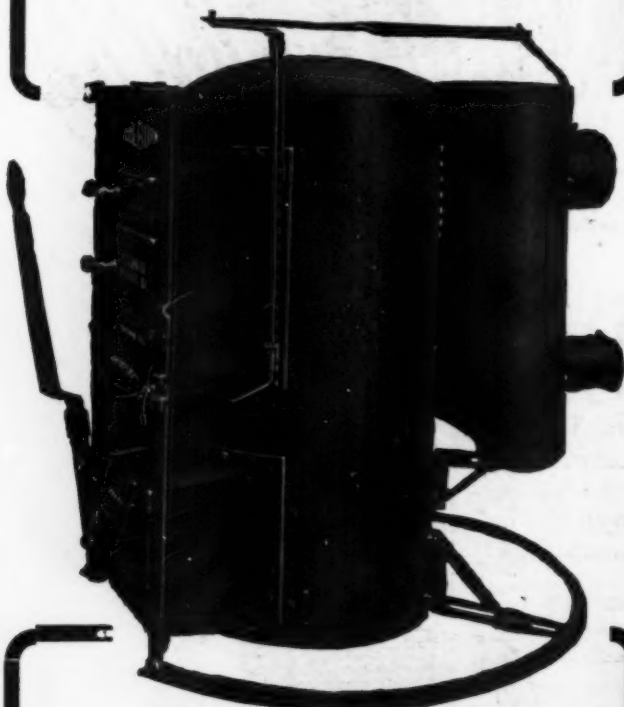


SUPERIOR SUPER-SMOKELESS WARM AIR FURNACE

SUPERIOR DEALERS ARE EXCEPTIONALLY LOYAL — WHY?

Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois.
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Attractively priced
Saves 20% to 30% of coal
costs

Burns any kind of coal
Delivers clean heat
Requires minimum attention
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more Col-Burns. Ask us for
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users write to us.

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The Col-Burn Dealer Policy is of the utmost importance to every man who ever has sold, or who ever expects to sell a furnace. Write for details today.

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Name
Address

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1925

1926
8,000

1927
18,000

These figures show growth
and have a particular sig-
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large dealers interested in
quality-quantity



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The *Agricola* is the product of the latest and
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Agricola Furnace Company
GADSDEN, ALABAMA

A Still Greater TORRID ZONE FOR 1928



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New literature describing the 1928 TORRID ZONE in detail has just arrived from the printer and we will be glad to send you this information promptly upon request.

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MARSHALLTOWN, IOWA

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2. Riveted gas tight. (Guaranteed).
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4. Heavy locomotive type grates.
5. Patented bracket for radiator support.
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10. The practical oil burning furnace.

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By Geo. W. Kittredge and Associates

NEW REVISED EDITION Including Some New Problems by FRANK X. MORIO

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Indispensable as a Work of Reference for the Foreman and Mechanic

THIS work is the standard reference on all phases of pattern drafting and is recognized as the most practical and thorough text book on modern methods of developing and cutting patterns for sheet metal work. It covers the principles underlying practically every problem that is likely to come up in daily

practice. Beginning with the selection and use of drawing tools, the author explains linear and geometrical drawing so clearly that one who has had no previous knowledge of arithmetic or drawing may understand these essentials and apply them. The most approved methods of pattern cutting are also given in the course of the work. As the book progresses the problems gradually become more advanced until the theory of triangulation is fully treated with many practical examples.

This volume does not presume upon any previous technical knowledge on the part of the beginner but aims to place before him all that is necessary to a thorough

understanding of the work performed in the last chapter the practical problems which constitute the bulk of the book. No better text book for home study has ever been published.

The secret of success in sheet metal pattern cutting is in knowing how to apply the principles of geometry to your problems. Upon these underlying principles this book is written and ever since its publication it has been considered the standard authority on sheet metal pattern cutting and many affectionately term it "The Bible of the Trade."

This new edition has been carefully revised in order to keep it up to date and abreast of modern times and it will prove an infallible guide to everyone interested in sheet metal pattern drafting. Besides being a systematic treatise on pattern cutting it is also valuable as a reference book of pattern problems to be drawn from at convenience.

A glance at the list of chapter and section headings will give a clear idea of the scope and arrangement of the book.

AMERICAN ARTISAN

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Chicago, Ill.

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LIST OF CHAPTER AND SECTION HEADINGS

1. Terms and Definitions. Alphabetical List of Terms.
2. Drawing Tools and Materials.
3. Linear Drawing.
4. Geometrical Problems. Construction of Regular Polygons. The Ellipse. The Volute.
5. Principles of Pattern Cutting. Parallel Forms. Regular tapering Forms. Irregular forms.
6. Pattern Problems. Parallel Forms (Miter Cutting). Regular Tapering Forms (Flaring Work). Irregular Forms (Triangulation). Mixed or Combination Forms. Automobile Patterns. Index.

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Name

Town..... State.....

January 9, 1928

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Yours truly,
(Signed) Charles D. Eliot,
317 Third Avenue North,
Great Falls, Montana.

**We invite any manufacturer of
furnaces to show a better record.**

The HESS-SNYDER COMPANY
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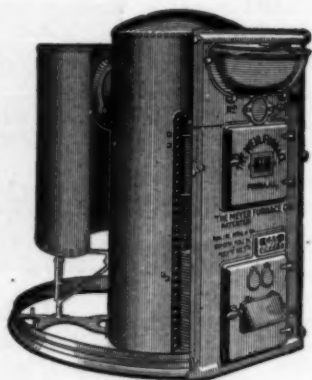
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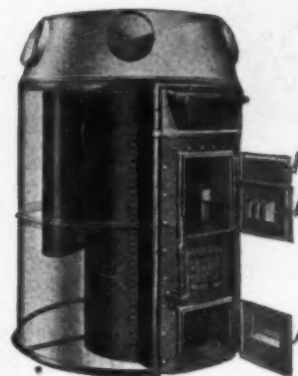
1928 finds our facilities greatly improved and even better service may be expected by our friends who already know that "Standard Service" is Different and Better.



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Nesbit Cast Iron Furnace



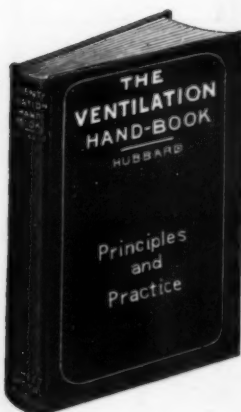
Stan-Co Steel Furnace

STANDARD FURNACE & SUPPLY COMPANY

Manufacturers and Distributors
OMAHA, NEBRASKA

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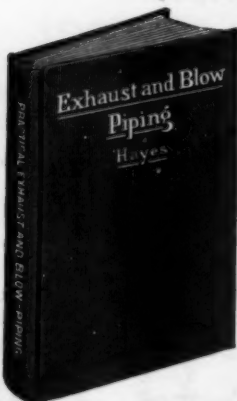
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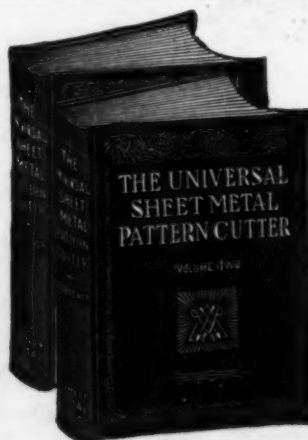
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THE most practical and useful treatises on the subject.

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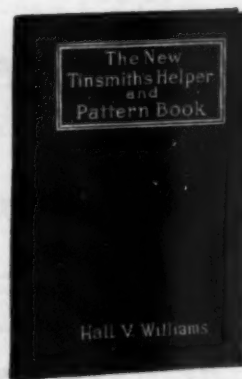
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The volumes are bound in heavy cloth and each measures 9x12 in. Each contains over 380 pages and 680 original drawings. Price each..... **\$7.50**

\$3.00

THE NEW METAL WORKER PATTERN BOOK

IT contains solutions of individual pattern problems in every department of sheet metal work, giving the complete methods of laying out all forms of work. It covers every detail from the selection of tools, through Linear and Geometrical Drawing, to development of Difficult Problems by Triangulation. This revised edition contains a series of automobile patterns. These include laying out guards, fenders, cowls, skirts, hoods, etc. It has 514 pages, 895 illustrations and diagrams, measures 9x12 inches and is cloth bound. Price **\$6.00**



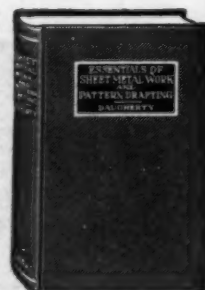
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A NEW edition of one of the most popular books on tin-smithing and elementary sheet metal work. The contents of this new edition are new excepting the chapter on Mensuration, which has been re-arranged and amplified, and possibly some fifty pages of problems and tables which are classified to the phase of the work they

cover. This book covers simple geometry and every phase of modern pattern cutting, from the making of every type of Seam, Lap and Joint, to Conical Problems and Tinware, Elbows, Piping, Ducts, Gutters, Leaders, Cornice and Skylight Work and Furnace Fittings, 352 pages, 247 figures and 165 tables, flexible leather bound and measures 4 1/2 x 5 inches. By Hall V. Williams. Price..... **\$3.00**

ESSENTIALS OF SHEET METAL WORK AND PATTERN DRAFTING

A BOOK produced by the combined efforts of L. Broemel and the late Professor J. S. Daugherty, instructor in Sheet Metal Work at the Carnegie Institute of Technology. Pattern drafting is its biggest feature; not only tells how to make the pattern, but how to develop it with modern machines and tools; gives valuable assistance on soldering, brazing, welding, crimping, beading, straight, circular and ir-



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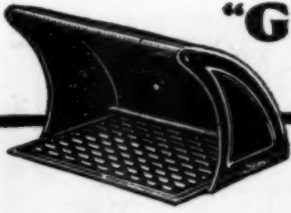
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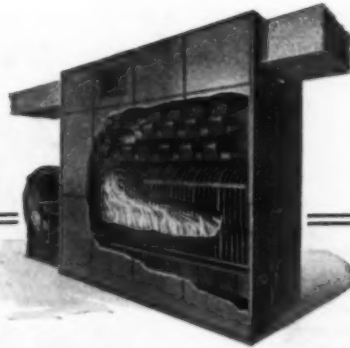
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QUINCY PATTERN COMPANY
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Sell
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The NATIONAL SYSTEM of FAN BLAST

Warm Air Heating

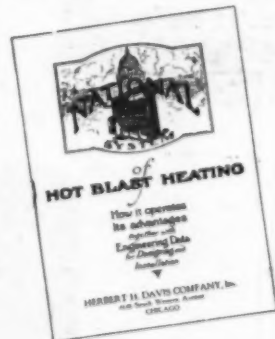
YOU can land the big jobs in your town with this system.

You don't have to know how to engineer the job or draw the plans—WE DO THAT and guarantee the job.

Our proposition is only for Large Churches, Dance Halls, Schools, large Residences, etc. that ordinarily you would let the steam or hot water man have.

The booklet illustrated tells all about our Engineering Service and the National System of Fan Blast Heating we install in large buildings in the Chicago district.

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and
Sheet Metal Work

American Artisan and Hardware Record

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FLEETING FORTUNE

"The advice of Noor ad Deen Ali to his son in Arabian Nights.

"Oppress no one, lest Fortune oppress thee, for the fortune of this world is one day for thee and another against thee, and its goods are but a loan to be repaid. Be merciful to all, as thou on mercy reckonest; for no hand is there but the hand of God is over it, and no oppressor but shall be worse than the oppressed. Keep therefore thy wealth, that it may keep thee, and watch over it, that it may watch over thee. Squander not thy substance, or thou wilt come to need.

"When a rich man grows poor, his lustre dies away, like to the setting sun that pales with ended day. Absent, his name is not remembered among men; present, he hath no part in life and its array. He passes through the streets and fain would hide his head and pour out floods of tears in every desert way. By Allah, when distress and want descend on men, but strangers midst their kin and countrymen are they."

—From Ingot Iron Shop News.

The largest makers of Heating equipment in the world Announce

The new **SUNBEAM** WARM-AIR FURNACES *1000 Series*

An entirely new furnace line—new from the one-piece base to the one-piece radiator! New feed section and ash pit that extend outside of front panels! Greater heating capacity! Greater strength! Easier, speedier installations—these are some of the advantages that the New Sunbeam Warm-Air Furnaces, 1000 Series, offer heating dealers, everywhere.

After a lengthy period of testing and experimenting and a study of present-day heating requirements, the immense resources of the largest makers of heating equipment in the world

were drawn on to develop a new heating plant in which is incorporated practically every feature that will help you obtain the bulk of the heating business in your locality.

Decide today, to learn more about the new Sunbeam Furnaces. Send for the new 40-page Catalog and Heating Manual which illustrates and describes the complete Sunbeam Furnace line—and which has page after page of installation suggestions, heating data and additional information to which you will refer whenever laying out an installation. Return the coupon below.

OUTSTANDING FEATURES

- 1 Massive Radiator, Clean-out and Smoke Collar cast in one piece.
- 2 Feed Section extends outside of front of furnace.
- 3 Ash Pit extends outside of front of furnace.
- 4 More than 20 feet of joint within warm air chamber have been eliminated.
- 5 Two types of grates—Boiler or Flat—are available.
- 6 Easy-to-operate, upright shaking lever.



- 7 All joints are deep, clean-cut cup joints.
- 8 Doors and door openings are machine-ground in special jig to insure air tight fit and absolute control of fire.
- 9 Heating unit is centered.
- 10 One-piece base with high casing flange reduces installation time and costs.
- 11 All castings are machine-molded. Are extra-heavy; uniform in thickness and strength.

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Company

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*Largest
Makers of
Heating
Equipment
in the
World*

PERFECTLY CENTERED

Draw a straight line through the center of the one-piece base and radiator and it will pass through the center of fire pots and combustion chamber.



THE
FOX
FURNACE
COMPANY
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Please send a copy of the new 40 page Catalog and Heating Manual.

Name.....

Address.....

City and State.....

A-2



**"I go after
big jobs like these
and get them"**



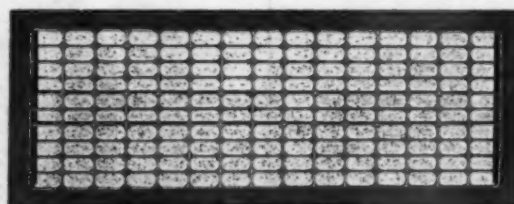
"NOT long ago the more pretentious homes were considered the rightful prospects for only steam or hot water heating. But since hot air became Recirculating Warm Air, with the advantages of plenty of warm air, fresh and moist, circulating throughout the house, I just naturally have to boost this type of heating. And, believe me, I get the orders!"

You, too, should be closing these worthwhile prospects for warm air heating. H. & C. Registers and Cold Air Faces, with their many points of advantage, will make your story on Recirculating Systems, with *their* marked advantages, ring with sincerity.

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No. 255 — Cold Air Face

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"The Air Capacity Line"

Mention AMERICAN ARTISAN in your reply—Thank you!



American Artisan and Hardware Record



Vol. 95

CHICAGO, JANUARY 28, 1928

No. 4

Indiana Sheet Metal Men Step to Fore With Consolidated Organization

*New Life Injected Into Body
and Prospects Are Bright*

THE Indiana Sheet Metal Contractors' Association and the Indiana Warm Air Heating and Ventilating Association will henceforth work in harmony and accord. The complete merger of these two organizations was completed at the opening of the annual convention of the two organizations held in the Denison Hotel, Indianapolis, January 24 to 26, 1928.

The consolidation proceedings were effected after a two-year struggle on the part of the two associations to find some equitable basis upon which the plan could be worked out. Officials feel that now there will be built in the state of Indiana a strong organization working for the betterment of the sheet metal and warm air heating industries. Under the new plan duplication of effort and expense will be entirely eliminated.

**Minutes of the Meeting of
the Consolidation Com-
mittee Sheet Metal Con-
tractors' Association of
Indiana, Incorporated,
and the Indiana Warm
Air Heating and Ven-
tilating Association**

There were present for the Sheet Metal Contractors' Association of Indiana, O. Vorhees, Joseph Mattingly, with President Waters ex-officio, President Beaman and Guy Voorhees for the Indiana Warm Air Heating and Ventilating Association, and Paul R. Jordan, executive secretary for both organizations.

President Beaman read the pro-

posed new by-laws section by section, and with revisions and additions, they were approved as follows:

**By-Laws, Sheet Metal
and Warm Air Heating
Contractors' Associa-
tion of Indiana, Inc.**

ARTICLE I

Section 1. The name of this association shall be the Sheet Metal



**William S. Waters
Re-elected President**

and Warm Air Heating Contractors' Association of Indiana.

ARTICLE II

The particular objects for which this association is formed are as follows:

Section 1. To promote and encourage greater cooperation between employers and employees by aiding and encouraging more

friendly relationship between the members of this association or employees and other organizations undertaking to bring back into this industry the humane and personal feeling between the employers and employees that should properly exist.

Section 2. To promote the general welfare of its members by the collection and distribution of reliable and useful information to its membership, thus affording the means for intelligent consideration and action in matters pertaining to the industry; to facilitate the purchase and handling of materials necessary; to provide the best and most satisfactory methods for handling and execution of contract.

Section 3. To promote and encourage efficiency in the sheet metal and warm air heating industry; to generally encourage and aid in the education of apprentices in the trade; to generally encourage more liberal use of sheet metal in construction and warm air heating.

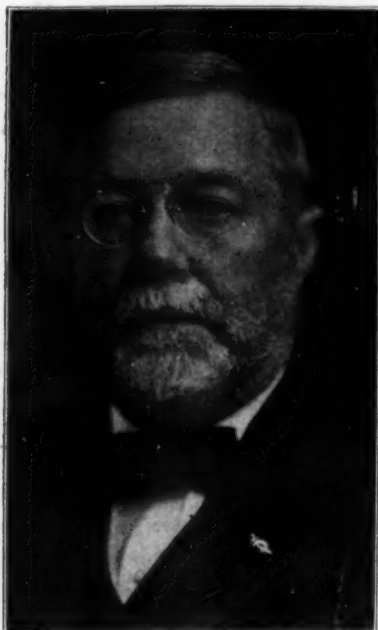
Section 4. To promote and encourage the principles of justice and equity in all dealings between employers, employees, co-employers and co-employees, architects, engineers, material dealers, the general public and all others.

Section 5. To promote, encourage and advocate needful and helpful legislation for the industry and for the general good of all those engaged therein.

Section 6. To counsel, advise, encourage and secure honorable dealings in the performance and execution of contracts with the pub-

lic, with each other, with employees, and others engaged in the building business.

Section 7. To promote and encourage the formulation and adop-



Joseph Gardner
Director

tion of such trade customs of business as will be just, equitable and honorable between man and man.

Section 8. To in every way, manner and form promote and encourage the best interests of this association by the establishment of a strong and sympathetic bond of friendship among the membership thereof, thereby securing unity of action and effort in the accomplishment of a common purpose.

Section 9. To assist in the uplift and elevation of the standard of our trade, and to encourage our membership and those employed of a better standard of life and living.

Section 10. To coöperate in every honorable and legal way with the associations and organizations in allied and kindred lines and with individuals, firms and corporations in different lines of business for the general good of the industry.

Section 11. To secure and aid in the correction and reformation of any wrongs pertaining to and effecting the general interest of the building industry.

Section 12. To encourage the obedience of the spirit, intent and letter of all laws and ordinances made by our federal, state and municipal government for the regulation, control and conduct of building operations, and that no action shall be taken by this association or the membership hereof which, in any form or manner, would or might be construed as a participation in, or encouragement of, any illegal act, arrangement or combination as against the law made and provided in such cases.

ARTICLE III

Membership

Section 1. This association shall be composed of individuals, firms and corporations regularly engaged in the sheet metal and warm air heating business within the State of Indiana.

Section 2. Wherever possible the members should organize themselves into local associations, and in localities where locals are organized, membership in this association may be through local associations.

Section 3. Individuals, firms or corporations eligible for membership in localities where no locals exist may affiliate with the state association in the individual membership class.

Section 4. Members of the state association may affiliate with any national association they deem fit, but they shall pay the dues of the association of which they become members.

ARTICLE IV

Dues

Section 1. The dues for each member of the state association shall be \$7.00 per annum, beginning January 1st, 1928.

Section 2. All dues shall be payable annually in advance on January 1st of the calendar year.

ARTICLE V

Quorum

Section 1. Fifteen members in good standing shall constitute a quorum for the transaction of business at any regular meeting of the association.

ARTICLE VI

Officers

Section 1. The officers of this

association shall be a president, two vice-presidents, recording secretary, treasurer and an executive secretary.

Section 2. The board of directors is to be composed of the elective officers and six members.

Section 3. The president shall appoint a nominating committee of three members in good standing the first day of the annual convention who shall select a complete ticket. The chair shall ask for other nominations from the floor from any member in good standing up to the moment of election.

Section 4. The president, two vice-presidents, recording secretary and treasurer shall be elected annually by ballot. The directors shall also be elected by ballot—two of the six to be elected for a term of three years, two for a term of two years and two for a term of one year, and two on each succeeding year for terms of three years.

Section 5. The executive secre-



Paul R. Jordan
Executive Secretary

tary shall be employed by the board of directors and shall carry on the necessary business under the direction of the board of directors.

Section 6. Voting for officers

and directors shall be by ballot and the candidates receiving the highest number of votes shall be declared elected.

ARTICLE VII Duties of Officers

Section 1. The president shall preside at all meetings of the association and of the directors; shall appoint all committees unless otherwise directed by the convention, and act as an ex-officio member thereof; shall issue calls for all meetings of the directors, and shall perform such other duties as are usual to his office.

Section 2. The vice-president shall, in the absence or disability of the president, perform the duties devolving upon him.

Section 3. The recording secretary shall keep a record of all business transacted at the regular annual meeting of the association, and at any special meetings that may be called by the president, and file reports of all proceedings to the executive secretary, whose duty it shall be to file these with all records of the association.

Section 4. The executive secretary shall be under the direct supervision of the president and board of directors, and shall keep an accurate record of all business transacted at meetings of the board of directors, and a complete roster of membership of the association in books provided for that purpose. He shall collect all dues and accounts due the association and keep an accurate record of receipts and disbursements of the association, or the board of directors, and perform all duties pertaining to his office. He shall remit all money to the treasurer promptly from collections, less the fees due him for his services.

Section 5. The treasurer shall receive all money remitted him by the executive secretary; give his receipt therefor; and shall pay all orders signed by the president and attested by the executive secretary. He shall make a written report at the annual meeting of the association and turn over all books, money and other property of the association at the expiration of his term

of office to his successor. He shall give a trust company bond for the faithful performance of the duties of his office in such amount as may be required by the board of directors.

Section 6. The board of directors shall have general charge of the affairs, property and assets of the association.

Section 7. The board of directors shall have power to remove any officer or member of the association for failure properly to perform the duties of his office, or for conduct unbecoming an officer or member of the association. The person so accused shall have due hearing and



O. Voorhees
Recording Secretary

ample opportunity to defend his actions.

Section 8. In case of the death, removal or resignation of any officer or member of the board of directors, the board of directors shall fill the vacancy thus created until the next annual meeting.

Section 9. As it is the duty of the directors to carry out the objects and purposes of the association in the interim between meetings of the association, the board may exercise all the powers of the association subject to the constitution and by-laws.

Section 10. A majority of the board of directors shall constitute a quorum for the transaction of business. A member of the board may cast his vote on any specific question by mail, but no proxy shall be recognized.

Section 11. Members of the board of directors shall be reimbursed for railroad fare incurred by attendance at any special meetings of the board.

ARTICLE VIII Annual Convention

Section 1. The annual convention and meetings of this association shall be held preferably in the first quarter of the calendar year, at such places and dates as the convention or directors may select. The program shall be so arranged that the two branches will be given equal consideration.

Section 2. All members of the state association in good and regular standing shall be entitled to a vote in the convention and be eligible for any office.

Section 3. Special meetings of the association may be called upon ten days' notice by the president and board of directors, providing, however, that no business shall be transacted at such meetings except that set forth in the call.

ARTICLE IX

Standing Committees

Section 1. The annual convention shall determine the standing committees and their duties.

Section 2. There shall be elected at the annual convention such delegates as are to represent this association at any national convention, and only those who are members of such national association are eligible to be made delegates to its meetings.

ARTICLE X

Individual Membership Applications

Section 1. Applications for membership in the individual class shall be referred to the president and recording secretary for approval. The president shall have power to refer all such membership applications to the board of directors.

ARTICLE XI Amendments

Section 1. These by-laws may be amended at any annual meeting by a two-thirds majority of all the votes cast.

Following the order laid down in the foregoing by-laws, the chair



Photograph of Exhibits in Hotel Denison, Indianapolis, Durring Convention of Sheet Metal and Warm Air Heating Association of Indiana.

appointed the Nominating Committee who suggested the following names for officers:

President, William Waters, Indianapolis; First Vice-President, Frank E. Anderson, Terre Haute; Second Vice-President, V. L. Roland, Elkhart; Recording Secretary, O. Voorhees, Indianapolis; Treasurer, Charles E. Tharp, Fort Wayne.

The directors for three years are Joseph Gardner, Indianapolis; Thomas Ewing, Huntington. For two years, John Volkema, Lafayette; Charles Gatz. One year, Homer Selch and Harry Beaman, Indianapolis.

A resolution of sympathy on the death of W. A. Brown, Marion, Indiana, was passed. The committee consisted of Joe Mattingly, Homer Selch and Joseph Gardner.

The Wednesday session opened with an address by Stanley A. Knisely, Sheet Steel Trade Extension Committee, on "Selling It Is the Job," in which he emphasized the fact that production is only secondary. This address will be published in one or two later issues of AMERICAN ARTISAN.

Then came a very able address by George Steck, Central Alloy Steel Corporation, Massillon, Ohio, on "Rust Resisting Iron." In this talk was given some of the reasons why iron corrodes and how it can be made not to. It is published on another page of this issue.

"Building Public Appreciation" was the subject of an address by Harvey A. Call, Copper & Brass Research Association. Mr. Call's address was very well received and is published in full on another page of this issue. This concluded the morning program.

At noon the wives of the members were entertained at a luncheon at the Columbus Club by the Fur-Mets, which was followed by a theater party. By noon of Wednesday the registration had reached 133, making this the largest attendance at an Indiana convention for some years.

The afternoon program contained several good addresses. C. F. Stothard of the Hardware Mutual Casualty Company outlined the many excellent features his company has to offer sheet metal contractors in the way of protection.

Howard E. Jones gave an address on "It Can Be Done Because It Is Being Done," which was well received.

O. Voorhees, President Twentieth Century Heating Company, gave an inspirational address on the subject of "Let's All Be Good Fellows Together." Mr. Voorhees has always had his whole heart and soul in the welfare of the sheet metal and warm air heating industries and he made a very strong appeal for the coöperation of all sheet metal and furnace men for the betterment of conditions in the industry.

Edward E. Green of the Arsenal Technical High School, Indianapolis, told of the work the school is doing in training boys for work in the sheet metal industry.

Thursday morning's program was filled with good things for the edification of the sheet metal contractor and warm air furnace installer. Edward Carter gave a very interesting talk on "Keeping Yourself Before Your Trade." In this he indicated how successful contractors in different parts of the country are employing advertising in the local

newspapers. The address was well received.

Mr. Carter was followed by Professor J. D. Hoffman of Purdue University. Professor Hoffman spoke on some of the difficulties in



Joseph E. Mattingly
Director

the warm air heating industry. What he said, in part, follows:

"The centralized warm-air heating plant is the natural outgrowth of the isolated stove-in-every-room method of heating. Instead of a number of stove fires in the building, one large stove is set up in the basement and enclosed in the requisite sheet metal or brick casing so that the cooled air from the rooms may return to the bottom of the large stove and be heated as it passes up between the stove and the casing and thence through the warm air pipes to the rooms again, completing the circuit. Thus the muss and effort of fueling and taking care of the various heating units are all confined to the basement and to one unit. Such a system is the simplest type of heating system in use today. In addition, if it is properly installed, it is safe from fire and explosion and is unusually well adapted to changes in weather conditions.

"Any centralized system of heating applied to the average residence today meets with some *real problems* in attempting to overcome the unsatisfactory building conditions so commonly employed. *And herein lies our first real difficulty.*

"Heat is lost from a house in three ways—by *conduction* through the outer shell to the air currents without, by *radiation*, and by *air leakage*. In a well-built house with outer shell well insulated all of these losses should be small. In a poorly built house, conduction through the walls is heavy and the air leakage is frequently excessive.

"As long as the walls are reasonably tight and the air-leakage small the problem is a simple one for the furnace man, but when, as is true in too many cases, the building construction is so loosely made that the heating system is called upon to heat large quantities of outside air which leaks into the room, the problem is more complicated.

"The improperly designed warm-air system, in attempting to meet this air-leakage problem is handicapped because of the varying air pressures created in the various rooms of the house. Those on the windward side have the heaviest pressure. The air which leaks into the room being naturally colder than the room air has a tendency to overbalance the upward pressure of the warm air in the supply pipe and reduces the velocity of the air quite materially. At times this effect is so great as to cause a reversal of this current of air and the rooms will be cold. This condition must be met by adjusting the pipe sizes and installing them in such a way that the friction losses in the heating lines may be reduced to a minimum.

"Because of these difficulties warm air systems should be planned and installed with regard to exact fundamental physical laws, and the furnace man should be the first man to insist upon a careful consideration of the house and its influence upon the heating system within. It is to your interest to urge upon prospective home owners that they build houses of such character that on cold days the warm air may be kept within the house and the cold air kept without.

"Now, concerning the heating system itself. Three elements form the warm air line—the leader, the stack and the register. In the

natural air circulation the stack is the neck of the bottle so to speak. There has been very little difficulty in the sizing of the leader pipes. Also there has been no serious trouble with the sizing of the registers, but the type of partition wall which is so common in the ordinary residence necessitates keeping the stack to the smallest size possible. The 4-inch studded wall is still in vogue. This should be changed to 6-inch studs on all parts of the partition wall where warm air stacks are run to second floor rooms. This is important.

"At present the Standard Code first estimates the size of the leader or warm-air pipe and then specifies 70 per cent of this size as the size of the stack. This relation of 70 per cent should be taken as an absolute minimum. With a 4-inch wall this will give satisfactory results for a moderate sized room not heavily exposed, but such a wall is too thin where the room is heavily exposed. All pipes of this sort are more efficient where the length and breadth dimensions of the cross section are equalized, and 6-inch partitions are tending in that direction.

"Other points of difficulty are encountered in the return lines which are frequently too small. These



Professor J. D. Hoffman

should be equal in cross sectional area to the sum of all the leader pipes leaving the furnace; in the transition fittings between the leader and stack, which should be de-

signed for a free and easy flow; and in selecting the furnace, which should be selected according to the specifications of the Standard Code.

"The Standard Code is an aid to the legitimate furnace man, a protection to the purchaser and a guarantee that future furnace heating will merit the confidence of the public. Since the Code was first approved by the five national societies interested in furnace heating, over 500,000 copies have been printed and circulated to dealers and prospective customers. The fifth edition is now in press.

"In addition to the Code proper, the Code has been written in ordinance form for use by cities, towns and incorporated villages as a model for use in regulating furnace heating in a municipality. This ordinance is printed and ready for distribution. Copies of the Code and Ordinance may be obtained by writing Secretary Williams, 174 East Long Street, Columbus, Ohio."

In closing his address, Professor Hoffman said, "Let us know our business before we do anything else." The warm air heating system has an appeal to the public because of its simplicity, safety and the economy which it makes possible. Its adaptability is one of its strongest appeals. The economy appeal is also worthy of note, because if you touch a man's pocket book, you touch his heart; you are performing a surgical operation that must be carefully done. "With all of your work be as scientific as the people will permit."

Charles E. Hall, President of the National Warm Air Heating and Ventilating Association, was scheduled to make an address, but due to the fact that he was called for jury service it was impossible for him to be present.

Thursday afternoon the meeting was opened with an address by Jere Doherty of Folsbee Brothers Company, speaking on "Organization." This address will appear in a later issue of AMERICAN ARTISAN.

Addresses were made also by J. C. Miles of the Warm Air Furnace Fan Company and George J. Duerr,

Editor of AMERICAN ARTISAN, the former on "The Misfortunes of the Furnace Industry," and the latter on "Helpful Hints in Selling." These addresses will appear in a later issue of AMERICAN ARTISAN.

The final speaker of the afternoon was W. C. Markle, Secretary of the National Association of Sheet Metal Contractors. Mr. Markle spoke on "Are You Needed?"

In opening his address Mr. Markle said: "Men are needed so long as they render a service. What service are you rendering your community? His point was very well



Charles E. Tharp
Treasurer

illustrated by a reference to the passing of two prominent Pittsburgh citizens, the one dying with little attention paid to his passing, while the other's decease left the citizens of Pittsburgh feeling a distinct loss.

Mr. Markle then took up the subject of why it pays to belong to an association and why the National Association of Sheet Metal Contractors is an organization that is doing things for the industry at large.

He spoke of bringing understanding to the problems of the sheet metal contractor and with a homely reference to the experience of two Pittsburgh sheet metal con-

tractors who had got into trouble because of a lack of understanding, and how the national secretary's office had been the means of bringing them together.

He also spoke of the membership of the National Association of Sheet Metal Contractors in the United States Chamber of Commerce. Comparing this membership and its importance with that of other trade associations, Mr. Markle said that the National Association of Sheet Metal Contractors has eight votes in the Chamber, while there are only a total of ten votes allotted to each trade association.

Mr. Markle spoke of the importance of a legislative committee to watch the legislation that is proposed for passed to see that it does not contain provisions that are detrimental to the industry.

Mr. Markle's talk was cut extremely short on account of the lack of time, but before closing he called attention to the certificate of membership that the National Association of Sheet Metal Contractors is now giving its members.

The banquet was held in the Chamber of Commerce and was attended by some 140 sheet metal and warm air heating contractors and their wives and children. The dinner was excellently prepared and served. R. S. "Tommy" Thompson, president of the Fur-Mets, presided. The toastmaster, Mr. Goodman, automobile editor of the Indianapolis *Daily Star*, did a fine job of toastmastering. He introduced with a running fire of hilarity-producing puns and chokes, in rapid succession, President Bill Waters, President-elect George Thomas of the Fur-Mets; Paul R. Jordan, Executive Secretary of the state association; W. C. Markle, Secretary of the national association, and Julien Wetzel, President of the Indianapolis Kiwanis Club. Mr. Wetzel was the principal speaker of the evening and kept the audience in an uproar for more than an hour. Dancing provided the entertainment for the guests of the Fur-Mets during the remainder of the evening. Thus one of the best con-

ventions that the Indiana men have ever staged came to a close. Prospects for the rapid growth of the Sheet Metal and Warm Air Heating Contractors' Association of Indiana, Inc., were never brighter than they are at the present time. W. H. Zeigler was presented with a beautiful gold watch as a prize for bringing in the most members during 1927.

After giving the Fur-Mets all the credit they deserve for the excellent manner in which they carried out their end of the program, mention must be made of the noble work of the Ladies' Reception Committee, which consisted of the Indianapolis women. The manner in which these ladies took charge of the members' wives was all that could be expected of them and they deserve great praise for their work and interest in the convention. They were as follows:

Ladies' Reception Committee

Mrs. J. T. Pope, Chairman; Mrs. Thos. V. Layery, Mrs. Wm. Herman, Mrs. Walter Class, Mrs. W. S. Waters, Mrs. Tommy Thompson, Mrs. Paul R. Jordan, Mrs. Ed Gardener, Mrs. Jno. Henley.

Membership and Guests in Attendance

A

Albright, Edward D., Moncrief Heating Company, 2102 South Calhoun Street, Fort Wayne, Indiana.
Anderson, F. E., Terre Haute, Indiana.

B

Balkema, Mrs. John, 104 Main Street, LaFayette, Indiana.
Balkema, John, 104 Main Street, La Fayette, Indiana.
Barnes, Creston W., Excelsior Steel Furnace Company, Kokomo, Indiana.
Barton, Jay, Chicago, Illinois.
Beaman, H. A., Allred Manufacturing Company, 2829 Northwestern Avenue, Indianapolis, Indiana.
Blythe, D. G., New York City.
Boone, Daniel, Hall-Neal Furnace Company, Indianapolis, Indiana.
Boone, Everett, 402 West Main Street, Greensburg, Indiana.
Booth, Ben, 142 East Ohio Street, Indianapolis, Indiana.
Burroughs, L. D., Monitor Furnace Company, Cincinnati, Ohio.
Burton, Otis, Orleans, Indiana.

C

Cain, A. S., American Furnace Company, Richmond, Indiana.
Cain, Robert, H. Cain and Son, Connersville, Indiana.
Call, H. A., Copper & Brass Research Association, 25 Broadway, New York City.

Carsen, William, The Unishear Company, Inc., 459 West Washington Blvd., Chicago, Illinois.

Carter, E. C., Chicago, Illinois.

Class, M., M. Class and Son, Indianapolis, Indiana.

Class, W. M., M. Class & Son, 1710 East 10th Street, Indianapolis, Indiana.

Cohn, Etta, American Artisan, 620 South Michigan Avenue, Chicago, Illinois.

Cooper, L. A., Standard Metal Company, 3744 Salem Avenue, Indianapolis, Indiana.

Cordes, P. L., Cordes Hardware Company, Seymour, Indiana.

Cramer, Ivan, Levezey Sheet Metal Works, 222 South 15th Street, New Castle, Indiana.

Cummings, D. E., The Thatcher Company, 7555 South Shore Drive, Chicago, Illinois.

D

Daufel, Ed., Daufel Brothers, 1183 Hoygen, Indianapolis, Indiana.

Detmer, Ed., Mulberry Street, Rising Sun, Indiana.



W. C. Markle
National Secretary

DeWeese, Frank, DeWeese "Sudden Service," 1016 N. Anthony Street, Fort Wayne, Indiana.

Dewers, Clifford, Aurora, Indiana.

Doherty, Jere, Follansbee Brothers Company, 321 South Missouri Avenue, Indianapolis, Indiana.

Doyle, F. J., Doyle Heating and Sheet Metal Company, 27 North East Street, Indianapolis, Indiana.

Dudley, A. W., A. W. Dudley Company, 1406 Wabash Avenue, Terre Haute, Indiana.

Duerr, George J., American Artisan, 620 South Michigan Avenue, Chicago, Illinois.

Duerr, Mrs. Geo. J., Chicago, Illinois.

E

Eaglesfield, J. L., Eaglesfield Ventilator Company, Indianapolis, Indiana.

Elzey, Ward, Follansbee Brothers Company, 310 Beecher Street, Indianapolis, Indiana.

Emerson, R. B., Colburn Heater Company, Auburn, Indiana.

Ensfield, W. H., Ensfield & Geyer, Logansport, Indiana.

Epperson, B. A., English Hotel, Cincinnati, Ohio.

Erdheim, George, 540 Washington Street, Gary, Indiana.

Ewing, Thomas, Huntington, Indiana.

F

Falvey, Thomas M., Burke Brothers Plumbing & Heating Co., 541 Broadway, Gary, Indiana.

Fanning, A. F., Langenberg Manufacturing Company, Auburn, Indiana.

Farquhar, D. R., Tuttle & Bailey Manufacturing Company, 649 North Austin Boulevard, Chicago, Illinois.

Fiala, W. J., Marshalltown Heater Company, Marshalltown, Iowa.

Frederick, Wm., 4106 East Tenth Street, Indianapolis, Indiana.

Gardner, Joseph C., Joseph Gardner Company, 147 Kentucky Avenue, Indianapolis, Indiana.

G

Gatz, Charles L., Gary, Indiana.

Gifford, D. J., Tuttle & Bailey Manufacturing Company, 4104 Irving Park Boulevard, Chicago, Illinois.

Gillespie, Lee W., Ferdinand Dieckmann Company, 1612 Clarewood Avenue, Cincinnati, Ohio.

Glenn, P. D., Muncie, Indiana.

Giffin, H. S., Wise Furnace Company, 581 Harrison Avenue, Lima, Ohio.

Glessner, A. A., Hart & Cooley Manufacturing Company, 61 West Kinzie Street, Chicago, Illinois.

Griffin, H. E., H. E. Griffin Sheet Metal Shop, 1708 First Street, Bedford, Indiana.

Grote, W. E., E. M. Priffs, 629 Washington Street, Gary, Indiana.

H

Hackenburg, J. T., Calumet Sheet Metal Works, 614 Forsythe Avenue, Calumet City, Indiana.

Hall, Charles E., Indianapolis, Indiana.

Hansacker, Don, Rudy Furnace Company, Anna, Illinois.

Harper, G. D., 49 South Indiana Street, Danville, Illinois.

Harris, H. G., Bloomington, Indiana.

Hausser, Raymond, Charles Hausser & Son, 2514 Bethel Avenue, Indianapolis, Indiana.

Hawkins, Raymond, 931 Virginia Avenue, Indianapolis, Indiana.

Headlee, B. M., P. F. Deady & Company, Terre Haute, Indiana.

Heads, Fred, Hart & Cooley Manufacturing Company, 61 West Kinzie Street, Chicago, Illinois.

Heath, H. L., Monticello, Indiana.

Heflin, C. C., 115 North Meridian, Lebanon, Indiana.

Henley, John C., Tanner & Company, 2137 Park Avenue, Indianapolis, Indiana.

Herman, John, 1725 North Oxford Street, Indianapolis, Indiana.

Herman, Wm., Herman & Walters Company, 1326 Parker, Indianapolis, Indiana.

Herrmann, Otto, Dollansbee Brothers Company, 5002 North Capitol Avenue, Indianapolis, Ind.

Holman, J. W., National Paint & Varnish Company, 2050 North Meridian Street, Cleveland, Ohio.

Huck, Harold, Co-Operative Tin Shops, 1703 North Twelfth Street, LaFayette, Indiana.

Huck, Mrs. Harold, Co-Operative Tin Shops, 1703 North Twelfth Street, LaFayette, Indiana.

Huettnner, C. A., Peoples Hardware Company, Gary, Indiana.

Huguenard, W. C., Fort Wayne, Indiana.

J

Johnston, J. E., International Heater

Company, 1933 Wentworth Avenue, Chicago, Illinois.

Jones, Hurbert C., Tanner & Company, 4001 East Washington Street, Indianapolis, Indiana.

Jones, Howard E., Sheet Metal Worker, 45 West 45th Street, New York City.

Jones, H. R., Milwaukee Corrugating Company, Indianapolis, Indiana.

Jordan, Paul R., Paul R. Jordan Company, 631 South Delaware Street, Indianapolis, Indiana.

Joslin, George, Tanner & Company, 525 Colorado Avenue, Indianapolis, Indiana.

K

Kalberer, E. J., 1705 Charles Street, LaFayette, Indiana.

Kalberer, Mrs. E. J., 1706 Charles Street, LaFayette, Indiana.

Kaplan, J., American Artisan, Chicago, Illinois.

Kelly, George A., Meyer Furnace Company, 3442 Kenwood Avenue, Peoria, Illinois.

Kilbourn, G. E., Homer Furnace Company, Coldwater, Michigan.

King, G. H., Standard Metal Company, 142 South Prim Street, Indianapolis, Indiana.

Klein, W. A., Braden Manufacturing Company, Terre Haute, Indiana.

Klepinger, Geneva, Co-Operative Tin Shop, LaFayette, Indiana.

Koenneman, W. C., Premier Warm Air Heater Company, 907 Union Street, LaFayette, Indiana.

Korshot, Jess L., 1324 North 14th Street, LaFayette, Indiana.

H. P. Kuhn, Hagerstown, Indiana.

Kuhn, Mearle, 139 South Eighth Street, Newcastle, Indiana.

Kress, Joseph, 2105 East Washington Street, Indianapolis, Indiana.

Kruse, Robert, Kruse Company, Indianapolis, Indiana.

L

Larney, J. W., Gilt Edge Heating Company, Fort Wayne, Indiana.

Lavery, T. V., 2416 East Michigan Street, Indianapolis, Indiana.

Leimkuehler, L. C., Copper & Brass Research Association, Landreth Building, St. Louis, Missouri.

Livzey, Elmer, Livezey Sheet Metal Works, 220 South 15th Street, New Castle, Indiana.

Lockhart, Carl B., Banner Mahonning Furnace Company, Youngstown, Ohio.

Loesch, H. C., C. W. Loesch & Sons, 521 Jackson Street, Columbus, Indiana.

Loesch, W. C., W. C. Loesch & Sons, 521 Jackson Street, Columbus, Indiana.

Lumm, Charles F., 202 South Randolph Street, Garrett, Indiana.

MC

McCrea, W. S., Banner-Mahonning Furnace Company, Pittsburgh, Pennsylvania.

McCan, W. F., Indianapolis, Indiana.

McDaniels, George H., Co-Operative Tin Shop, 1413 Union Street, LaFayette, Indiana.

McElwain, Mrs. H. O., 329 West Marion Street, Elkhart, Indiana.

McElwain, H. O., Lennox Furnace Company, 329 Marion Street, Elkhart, Indiana.

M

Mackin, T. Reid, International Heater Company, 1933 Wentworth Avenue, Chicago, Illinois.

Madinger, E. F., Fryberger & Eilers, 2314 East Washington Street, Indianapolis, Indiana.

Manion, Jno., Jno. Manion Company, 1017 Ohio Street, Terre Haute, Indiana.

Manion, Mrs. Jno., Terre Haute, Indiana.

Markle, W. C., 336 Fourth Avenue, Pittsburgh, Pennsylvania.

Mattingly, J. E., Henry C. Smithers Roofing Company, Indianapolis, Indiana.

Messmer, Geo. E., Bridge & Beach Manufacturing Company, 4204 North Union Boulevard, St. Louis, Missouri.

Meyer, Mrs. Jos. A., Evansville, Indiana.

Meyer, Jos. A., 1417 Main Street, Evansville, Indiana.

Michael, Herman I., Whitney Tin Shop, 925 East Whiteley Street, Muncie, Indiana.

Miles, J. C., The Warm Air Furnace Fan Company, Cleveland, Ohio.

Miller, C. D., C. D. Miller & Son, New Castle, Indiana.

Miller, Nelson, C. D. Miller & Son, New Castle, Indiana.

Miller, E. M., E. M. Miller Sheet Metal Works, Fairmount, Indiana.

Mills, Claud W., Bridge & Beach Manufacturing Company, 812 West Jackson Street, Muncie, Indiana.

Morrison, C. A., Bedford, Indiana.

Myers, Bert, Bloomington Radiator & Sheet Metal Company, Bloomington, Indiana.

Myers, E. A., The Perfection Furnace Pipe Company, 862 Prouty Avenue, Toledo, Ohio.

N

Neal, Harry W., Hall-Neal Furnace Company, Indianapolis.

Nichols, O. A., Follansbee Brothers Company, Indianapolis.

Novotny, John, 1325 Washington Street, Gary.

O

Ochs, T. L. Ochs, Pisotum, Illinois.

Oliphant, J. M., The Meyer Furnace Company, Indianapolis.

Olson, G. W., Chicago.

P

Pearson, Charles J., U. S. Register Company, Battle Creek, Michigan.

Perkins, Walter, Rushville, Indiana.

Peterson, Harry B., Quality Sheet Metal Works, Indianapolis.

Pope, J. T., Kenneth Pope, 6306 East Washington Street, Indianapolis.

R

Rheinsch, George, Sidney, Ohio.

Ricketts, Kenneth, A. D. Ricketts & Son, 620 Madison Avenue, Anderson, Indiana.

Rissing, John F., Rissing & Rundell, 115 East Columbia Street, Fort Wayne, Indiana.

Roland, Mrs. Virgil L., Elkhart, Indiana.

Roland, Virgil L., Elkhart, Indiana.

Roth, Carl, Brader Manufacturing Company, Terre Haute, Indiana.

S

Sapp, C. L., Farquhar Furnace Company, Wilmington, Ohio.

Schlemmer, Blount, Schlemmer & Schlemmer, Warsaw, Indiana.

Schu, Edwin, C. A. Schu & Son, Carlisle, Indiana.

Schwendeman, George, Worland & Schwendeman, Greensburg, Indiana.

Seifert, W. O., Peck, Stow & Wilcox Company, 2104 West 83rd Street, Cleveland, Ohio.

Selch, Homer, 844 Virginia Avenue, Indianapolis, Indiana.

Skinner, E. H., Fox Furnace Company, Elyria, Ohio.

Smart, T. J., Chicago, Ill.

Smith, Reed, C. A. Morrison, Bedford, Indiana.

Spillman, Edward G., Lennox Furnace Company, Winslow, Indiana.

Stothard, C. F., Hardware Insurance Company, Indianapolis, Indiana.

Steck, George, Central Alloy Steel Corporation, Massillon, Ohio.

Stewart, William, 2234 East Washington Street, Indianapolis, Indiana.

Stockwell, R. W., Langenberg Manufacturing Company, St. Louis, Missouri.

Strassner, W. M., Charles K. Strassner, Anderson, Indiana.

Swisher, D. R., Roland-Beach Company, 721 West Main Street, Richmond, Indiana.

T

Taylor, H. E., AMERICAN ARTISAN, Chicago, Illinois.

Teschner, W. C., Vincennes, Indiana.

Tharp, Charles E., 3509 South Harrison Street, Fort Wayne, Indiana.

Thomas, Effie M., The Standard Metal Company, Indianapolis, Indiana.

Thomas, George, The Standard Metal Company, Indianapolis, Indiana.

Thomas, James A., 1405 West 26th Street, Indianapolis, Indiana.

Thomas, J. H., A. W. Dudley Company, Terre Haute, Indiana.

Thompson, R. S., Mt. Vernon Furnace & Manufacturing Company, Mt. Vernon, Illinois.

V

Voorhees, G. A., Century Heating Service Company, Indianapolis, Indiana.

Voorhees, O., Century Heating Service Company, Indianapolis, Indiana.

W

Wachtel, Wm. E., Danville, Indiana.

Wagner, O. S., Wagner Manufacturing Company, Franklin, Indiana.

Wallace, M. C., Wallace Supply Company, Fort Wayne, Indiana.

Wallace, R. R., Colburn Heater Company, Chicago.

Walker, R. A., Columbus, Ohio.

Walters, Mrs. Thomas, Herman & Walters, Indianapolis, Indiana.

Walters, Thomas, Herman & Walters Company, Indianapolis, Indiana.

Waters, W. S., Central Sheet Metal Co., Indianapolis, Indiana.

Watson, Clarence, Henry Watson & Son, Vincennes, Indiana.

Wesbecher, J. J., Gary, Indiana.

Wertzeberger, A., Calumet Sheet Metal Works, Hammond, Indiana.

Wilcox, Mrs. R. T., Standard Metal Company, Indianapolis, Indiana.

Wilcox, R. T., Standard Metal Company, Indianapolis, Indiana.

Wilkening, F. A., The Standard Metal Company, Indianapolis, Indiana.

Wolf, W. C., Fort Wayne, Indiana.

Woerdeman, A. J., 1616 North Rural Street, Indianapolis, Indiana.

Z

Ziegler, Walter H., F. O. Schoedinger, Columbus, Ohio.

Zweig, Philip, Zweig Roofing Company, Gary, Indiana.

Exhibitors Present

XXth Century Service Company, Indianapolis.

Tanner & Company, Indianapolis.

Paul R. Jordan & Company, Indianapolis.

Hart & Cooley Manufacturing Company, New Britain, Connecticut.

The Kruse Company, Indianapolis.

The Thatcher Company, Newark, New Jersey.

American Furnace Company, St. Louis.

Arsenal Technical Schools, Indianapolis.

Folansbee Brothers, Indianapolis.
 Bridge & Beach Manufacturing Company, St. Louis.
 Hardware Mutual Casualty Company, Stevens Point, Wisconsin.
 The Unishear Company, Chicago.
 Tuttle & Bailey Company, New York.
 Hall-Neal Company, Indianapolis.

Standard Metal Company, Indianapolis.
 Homer Furnace Company, Coldwater, Michigan.
 Fox Furnace Company, Elyria, Ohio.
 Langenberg Manufacturing Company, St. Louis.
 Monitor Furnace Company, Cincinnati.
 Mount Vernon Furnace Company, Mt. Vernon, Illinois.

Colburn Heater Company, Chicago.
 Banner Mahoning Furnace Company, Youngstown, Ohio.
 Marshalltown Heater Company, Marshalltown, Iowa.
 United States Register Company, Battle Creek, Michigan.
 Allred Manufacturing Company, Indianapolis.

Organization—What Is It?—Why Is It?—What Does It Do?

Some Tangible Benefits and Intangible Advantages That Accrue to Trade Association Members

By JERE J. DOHERTY

IT IS an honor to be allowed to address you at any time, but particularly so just now at your state convention.

Many of you know it is less than a year since I came into your midst, and yet this is more than long enough to realize the fine bunch of fellows you are.

To handle the subject given me by your chairman requires a more adept mind than I possess, and more time than can be allowed, but it is possible to bring out clearly some of the most important points in a general way, and my discussion will be limited to them.

Organization. What is it? Why is it? What does it do? First of all—what is organization?

The dictionary may give a different answer, but you all know from practical experience—"Organization is the joining of two or more individuals, firms, groups or materials to produce good results in an efficient manner for the betterment of the whole." Notice particularly, gentlemen, "for the whole"—not "for the individual." The individual is helped by being part of the "whole."

Secondly: Why is organization necessary? It is an established fact that individual efforts fail to produce permanent and lasting effects.

Third: **Results**—coöperative work and thoughts bring forth new ideas and corrects or strengthens old, proven facts. It makes permanent things that heretofore were only visionary.

The best illustration of this was the draft inaugurated in the World War. The United States was in an enviable position of balancing the scales.

But, the war is over! Any ex-service man could tell you that—many from sad experience. Let's

YOU do not belong in a back alley anymore than a drug store or a jewelry shop. They work to get the public's good will—(and money) and, so do you. Your work requires many years of education, both by study and application, and you are deserving of the best. You will only get what you ask for. Clean up your own backyard and stamp out the tramp "t'inker," and the poor worker, the dead-beats who harass you in bidding on jobs and weaken your general credit standing. You can do this—but—you cannot do it alone.

get down to facts, so we'll take one of your sister organizations—the Pennsylvania State Association.

It was my distinct pleasure to work with the men of this association during the past twenty years. They started out with a mere handful of public-spirited men trying to do right, but were rebuffed at every turn; accused of everything short

of murder. But they persisted, and today their association is a power able to dictate what is right and see that it is done.

During their early period, these men were terribly discouraged many times at the lack of interest on the part of their fellow workers who refused to join their ranks. Many good things they approved failed to pass the city councils and state legislature because they represented only a small portion of the whole. Their intensity of purpose, tireless labor and earnest enthusiasm did force several constructive changes, and gradually the other fellow workers realized results could be accomplished by combined efforts so they came in. One or two first, then groups, until finally the majority of sheet metal workers became full-fledged members of the association.

There is not time to go into details as to how they were all handled, but taking the adjusted compensation insurance rates as an example, the Pennsylvania association did enough on this alone to warrant its permanent existence. When the law was enacted the Insurance Board arbitrarily fixed the rates. They were divided into three classes:

- Shop work.
- Sheet metal and roofing—outside.
- Furnace work.

Shop work and furnace work were rated at \$1.90 per \$100 payroll. Outside work at \$3.95. At the Pennsylvania convention held

in Reading, Pennsylvania, in 1915, a representative of a large insurance company discussed this condition and created such an impression that a committee was appointed to investigate.

This committee learned that sheet metal workers were rated nearly three times as much as plumbers. Gentlemen, you know your occupation is no more—or only slightly so—hazardous than the plumber's. An injustice had been done, so the investigation continued and it was found all the receipts had been credited to the plumbers while the accidents were charged to the sheet metal workers. A fine mess! It was caused, however, by the fact that in the eastern part of the state most of the sheet metal shops did plumbing as well, so the state—trying to save itself work—saw no reason for keeping them separate.

After many interviews with state officials an adjustment was ordered effective at once. The rate was changed so that shops doing 50 per cent or more shop work were listed at only \$1.80 (15 cents less than the original flat shop rate), and later on this was reduced to \$1.50, then to \$1.15, and finally, in 1927, to \$1.00.

This year the rate was increased to \$1.30 on account of increased compensation to the employee. Right here is another case of organization, only on the other side, for it is very probable the unions were responsible for the increased compensation.

The money saved by any sheet metal worker on this alone more than pays his annual dues, providing he has three or more men.

If you, as an individual in Pennsylvania, think "All is not right on the Patomac"—all you must do is to inform the association secretary.

What happens to the other fellow? One case we know of where a man paid a rate of \$4.50 because of wrong classification. The insurance agent either didn't know—or maybe didn't care because the higher rate paid him more commission.

The Pennsylvania state association maintains a permanent legal

committee to keep constant watch on all bills introduced in the legislature, and this committee has killed or curtailed many that were detrimental to the sheet metal worker. If this committee had not been on the job, serious damage may have been done.

The association also coöperates with the Industry School of the Carnegie Institute of Technology. The apprentices work part time and spend the balance learning shop practices, blue print reading and other studies taught by this high-class educational institution. These students are accepted without reserve by all the other students and professors in the school as well as by the general public.

There are many other things carried on by this organization, but I am not fully enough conversant with them just now to go into them.

In general—outside of the positive benefits of organization you have the intangible advantages derived from contact with your fellow workers—fairer dealings—open discussion of topics that might cause ill feelings—rating in the business world; in general—respect and confidence of the public.

George Thomas Becomes President of the Fur-Mets of Indiana

The Indiana Fur-Mets held their meeting Thursday, January 26, 1928. President R. S. "Tommy" Thompson presided, while Harry R. Jones recorded.

The election of officers resulted as follows: President, George Thomas, Standard Metal Company, Indianapolis; First Vice President, Fred Heads, Hart & Cooley Manufacturing Company, Chicago; Second Vice President, George J. Duerr, Editor AMERICAN ARTISAN, Chicago; Third Vice President, Edward C. Carter; Fourth Vice President, F. S. Boone, Hall-Neal Company, Indianapolis; Secretary, Harry Jones, Milwaukee Corrugating Company, Indianapolis; Treasurer, John C. Henley, Tanner and Company, Indianapolis.

The directors are as follows: Chairman R. S. Thompson, Mount

Vernon Furnace Company; George C. Joslin, Tanner & Company; F. A. Wilkening, Standard Metals Company; Jere Doherty, Folansbee Brothers Company.

A resolution of thanks to the trade papers for the assistance they have been to the organization during the year was passed.

A vote of thanks and congratulations to W. H. Zeigler was passed, Mr. Zeigler being instrumental in bringing into the contractors' organization 21 members during 1927.

Ben Booth was introduced to the members. Mr. Booth is retired from Tanner & Company and was made an honorary member for life of the Fur-Mets organization.

Grand Rapids Sheet Metal and Heating Engineers Meet

On Tuesday evening, January 3rd, the Grand Rapids Sheet Metal and Heating Engineers held their regular monthly meeting at the office of M. E. Newell, Weiss Service Building. All members present agreed that Mr. Newell's office was a fine place to hold meetings, with its fine upholstered chairs and davenports, but a warm air heating plant should be installed or a non-union janitor employed to keep the fire going.

Promptly at 8:30 the meeting was called to order by President Lamoreaux.

Election of officers was the major business of the evening and resulted as follows: President, Ed Dykstrahuis; vice-president, Cliff Herrendeen; secretary, Ike Lammers; treasurer, Frank Oole. Retiring President Don Lamoreaux thanked the members for the support given him during the past year and turned the chair over to President Ed Dykstrahuis, wishing him all the success in the world for the coming year. The president-elect thanked the boys for intrusting him with the office and pledged his best efforts in making 1928 a huge success.

Tom Pierson proved himself very entertaining with his many stories and monologues, which consumed the remaining time of the meeting.

Construction of Pattern for Oil Funnel, Avoiding Triangulation

*In Response to Inquiry of J.
Albert Murphy, Flat River, Mo.*

By O. W. KOTHE, St. Louis Technical Institute

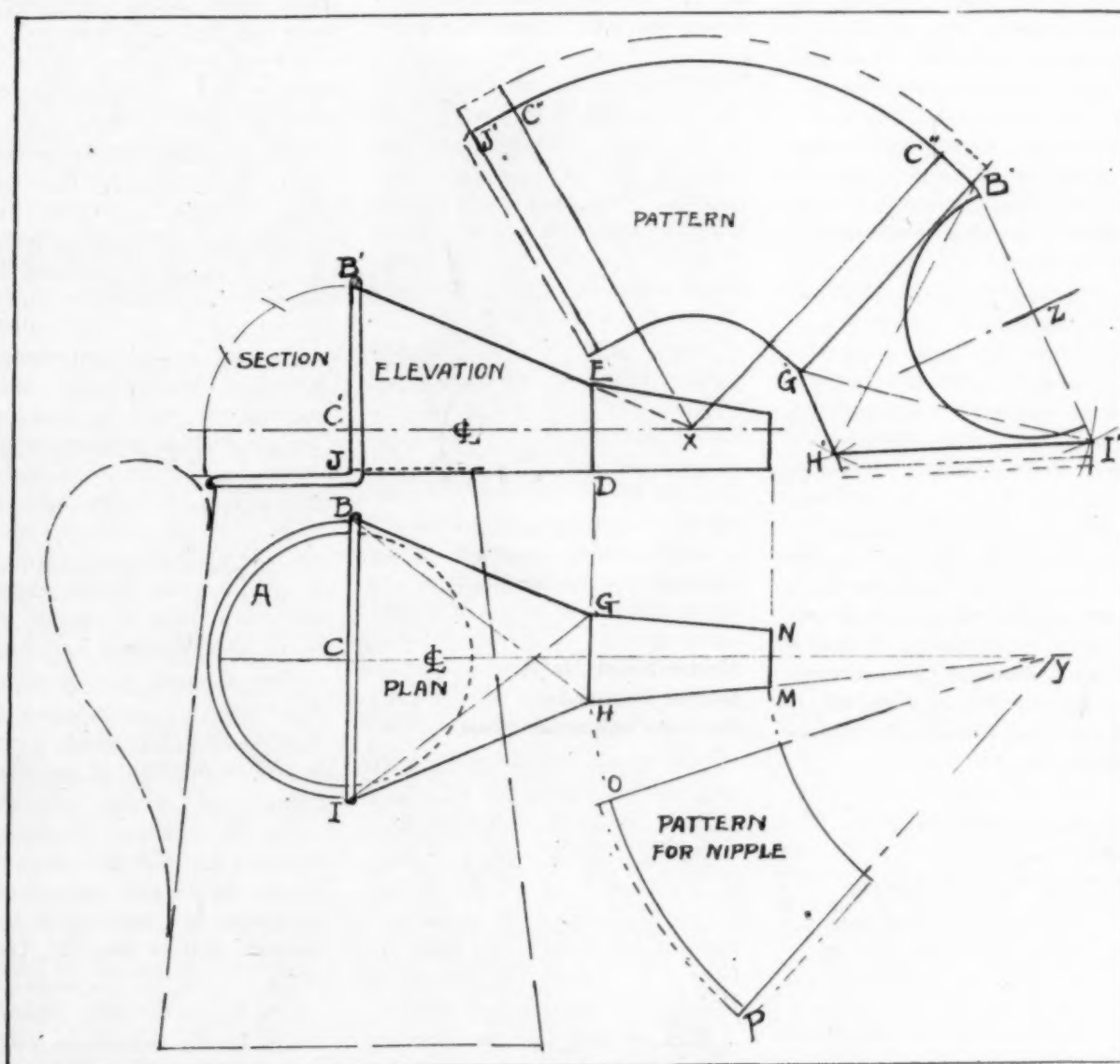
RESPONDING to the inquiry of J. Albert Murphy, proprietor of Murphy's Tin Shop, Flat River, Missouri, for a development for an oil funnel attached to a gallon measure, I will say, the accompanying drawing gives a simple, convenient way to get at it, to avoid the use of triangulation. Here the bottom is flat, and the top part is an ordinary semi-funnel with a

small straight piece, as C'-J.

To develop this problem, it is first necessary to know the size of the gallon measure. For this it is best to copy one of those you have around the place. Then describe the part plan, giving the width as B-I as section A. Next measure the length you desire the funnel as G-H to extend, and draw this diameter, or possibly $\frac{3}{4}$ -inch, or 1 inch

in diameter.

Next draw the side lines to pass the section A slightly, and then you can add the nipple, as M-N, making it possibly $\frac{1}{2}$ to $\frac{5}{8}$ inch in diameter. From this you can draw the elevation, measuring the diameter of small end of funnel, as D-E, to correspond with G-H, and then pass a center horizontal line through it. Now pick the half



Patterns for Oil Funnel

diameter C-B from the plan, and set as C'-B' of elevation, which will give you the same flare for the top. Draw line to E and extend to apex X.

The section for C'-B' is a semicircle, and is indicated by the section, which is a half view looking into the funnel. So to develop the funnel part, you use X as center, and B' as radius, strike an arc. On this, measure off the girth as C''-C'', which must correspond to the sectional spaces, or the half circumference of a circle having the diameter of B'-C' of elevation. When lines C''-X are drawn, then add the straight part C'-J of elevation on both sides as C''-J' and C''-B'. Draw these lines parallel to the radial lines C''-X, and then add the bottom of plan. This can be reproduced by spanning the dividers in a diagonal way as the lines indicate, and transferring them in pattern. This gives points I' and H', which enables drawing the outline. The center Z is located and the semicircle is cut out to fit the top of measure, and this is all there is to the funnel part.

The pattern for nipple is developed the same as any tapering pipe, extending the side lines to apex Y. Then using this as center, we describe the pattern. Make the girth P-O equal to the circumference that diameter G-H requires. This nipple must be bent so it conforms with the shape of funnel end; but this can easily be done with a pair of pliers. This, of course, is not an accurate pattern, but it is small, and can easily be shaped so it hardly pays to develop a more accurate pattern for the nipple. Laps for assembling and wiring must be allowed extra.

Detroit Sheet Metal and Roofing Contractors Hold Their Annual Meeting

Many successful annual meetings have been held by this association, but none have ever compared to the successful event of Tuesday evening, January 10th, at the Book-Cadillac Hotel. Even optimistic President Bill Busch was surprised

when he found it necessary to have an extra table set up for the overflow. During an unusually good meal, entertainment was furnished by a ladies' band, assisted by a male trio. State President Harry Rhodes was introduced and gave a very interesting talk on association work. Secretary Frank Ederle was next called upon and he gave a review of the activities of the state association for the past year. Local Treasurer E. G. Bush gave his annual report, which showed that the association was in a very healthy financial condition. Secretary Sullivan, in his annual report, gave a general review of the accomplishments of the association. Frank Dempsey, chairman of the nomination committee, was next called upon for his report. It was as follows: President, Wm. W. Busch; vice-president, Al. Berschbach, Jr.; secretary, Wm. P. Sullivan; treasurer, E. G. Bush; directors, Robert Candler and R. Ahern. A motion was then made by Al. Berschbach, Sr., supported by Nick Schwenter, that the rules be suspended and the secretary cast one ballot for the suggested nominees. The motion was unanimously carried.

Just as the meeting was about to adjourn, Bill Sullivan arose and presented President Bill Busch with a beautiful Gladstone traveling bag in appreciation of his untiring efforts during the past year. Following this, the meeting adjourned and a social session consumed the remainder of the evening.

Master Sheet Metal Men of Wisconsin Discuss Convention Plans

The Master Sheet Metal Contractors' Association of Wisconsin held its regular monthly meeting.

The meeting was called to order by President Tolg. Those present were: C. Tolg, A. Schumann, P. Biersach, A. Goethel, R. Jeske, H. Gehrke, C. Pansch, N. Ording, A. Podolske, F. Reinick, L. Reinke.

The minutes of the previous meeting were read and approved.

A letter from Geo. Harms, chair-

man of the committee preparing the Trade Development Book, was read. Herein he asked for support of their project. Mr. Paul L. Biersach, national president, gave a very interesting talk on the merits of the book, with an earnest appeal for the members to send in their orders. A general discussion ensued wherein enthusiastic support was offered. Some wrote out their orders at once, and others promised to see to it that they would be sent in shortly. This would also be taken up at the various locals for action. Mr. C. Pansch promised that the Racine Local would be in back of this project 100 per cent as soon as they have their next meeting.

Mr. Markle's letter, sent to those to whom subscription to the National Sheet Metal Contractor had been awarded, was then read. All expressed their pleasure at the good letter written. A general discussion on this subject ensued for the best means of following up this campaign for membership. At the present it was thought that a good letter of invitation to our convention would be about the best. For the convention a committee would be chosen to look after this matter.

The convention committee reported on the progress made in preparations for the convention. The program as prepared was presented for their approval and suggestions, and criticisms asked. With a few minor changes in wording, the program was warmly approved, and the thought expressed that the coming convention would be the best Wisconsin has ever had.

The secretary was instructed to write some of the auxiliary members to stop the usual side-room parties so prevalent at past conventions.

On Mr. Ording's motion, seconded by Mr. Gehrke, a registration fee of \$2.50 was placed, with a stipulation that reservation for the banquet must be made by Tuesday noon.

On motion by Mr. Jeske, seconded by Mr. Ording, a vote was cast to refuse delinquent members attendance into the banquet hall.

Copper & Brass Research Helping to Build Public Appreciation

Of the Sheet Metal Industry— Much Good Work Already Done

By HARVEY A. CALL*

THE Copper and Brass Research Association is endeavoring to do so much constructive work helpful to the sheet metal industry and to sheet metal contractors that it was a task for me to decide which of the many angles of our effort would be most interesting to you. So here at the start I am going to confess that but a few of the high spots have been selected for the time at my disposal.

Naturally the highest spot in any organization of this kind is the attitude of the guiding spirit. And there, gentlemen, every member of our organization feels very proud, for W. A. Willis, Manager of the Copper and Brass Research Association, is a level going, broad-minded gentleman keenly alert to the needs of the industry and the effectiveness of team work along sound economic lines. I think you will get a clearer picture of the importance of the guiding spirit of our organization when I tell you that the Copper and Brass Research Association is and has always been more interested in seeing copper, brass and bronze used properly where they should be used than it has been in struggling for tonnage of copper sales.

Giving Specific Examples

And here I think it is worth while to cite a specific example of how that policy acts to build prestige for the sheet metal industry. About two months ago we had some photographs taken of a copper faced marquee 330 feet long and extending around two sides of the Innes Building at Wichita, Kansas. (See

AMERICAN ARTISAN, January 21, 1928.) A little over a ton of copper was used by The American Cornice Works Company in making the face panels, return moulding and decorative runner on that job.

Here is the picture I want to bring to your mind, as it relates to our policy of being most interested in seeing copper used properly. All of us know that for a purpose of that sort copper will go on for scores of years without repairs,



Harvey A. Call

without paint, without deterioration—the only appreciable change being that the copper work gets more beautiful as it ages in the weather if the job has been properly done. Yes, how long the copper work on that marquee remains beautiful depends very, very largely on whether or not it was properly erected. (And here I am glad to digress and tell you that it was properly erected.)

The Innes Building stands on a prominent corner of Wichita's principle business street. Both street sides of the building under the marquee are expanses of plate glass interspersed with columns of the finest polished granite. So the

copper work of the sheet metal artisan is there, as in thousands of other instances, a very prominent feature in an environment of beauty, grace and permanence as expressed in the best type of architectural design. And it is truth when I tell you that not a soul with eyes to see passes that building without remarking the substantial beauty of the copper work on that building.

How Association Has Helped Architects

Copper erected in that fashion is a prestige builder for the sheet metal industry for scores and scores of years. The Copper and Brass Research Association has consistently worked to the end that architects, builders and owners might know that copper properly erected by the skilled sheet metal artisan lends a beauty which adds dignity to even the most luxurious surroundings and gives a permanence which is seldom excelled by the useful life of the structure on which it is placed.

Here again I want to digress and tell you that sheet metal contractors all over the country have rapidly assimilated the spirit of doing copper work well. One sheet metal contractor some months ago told me he had over 400 salesmen out working for him night and day. They were all well done copper jobs. Recently I learned from another contractor that he collaborates with architects to devise copper gutters and downspouts specially designed to harmonize with the exteriors of the building being planned by those architects. Incidents and practices similar to these are without number. To me they represent the aggressiveness with which the industry has grasped the necessity of giving the greatest

*Address by Harvey A. Call, Mid-Western representative of the Copper and Brass Research Association, Landreth Building, St. Louis, delivered at the convention of the Indiana Sheet Metal Contractors' Association, Denison Hotel, Indianapolis, January 24 to 26, 1928.

permanence to sheet metal work and their acceptance of copper as the proper medium of doing it. That combination is constantly building prestige for the sheet metal industry.

In back of the policy of being more interested in seeing copper, brass and bronze used properly wherever they should be used, all the resources of the Copper and Brass Research Association have been concentrated.

Research Work Very Extensive

To achieve that purpose the association maintains a research department which investigates new and existing uses of copper, brass and bronze. It maintains a building service department which coöperates with builders and contractors and assists prospective builders and buyers of homes in solving the vexing problems which confront them. It advertises in the daily newspapers of the key cities of the country, in national magazines and trade and technical publications. It supplies, without cost or obligation, to contractors and architects manuals of instruction on approved methods of using copper for roofing, flashing and brass pipe for plumbing. It publishes and distributes the *Copper and Brass Bulletin*, about 30,000 copies per issue. It supplies to home owners and prospective home owners attractive educational literature on copper, brass and bronze in the real home, brass pipe for plumbing, copper and bronze screens, hardware, electric wiring and on many other allied subjects. And it passes along, every evening, to the offices of the National Association of Sheet Metal Contractors all of the sheet metal sales leads developed by its extensive advertising to and its direct contact with the public with which you men are daily doing business.

You are all familiar with copper and its ability to give utmost permanence to the work of the sheet metal artisan. Many, possibly all of you, recognize well done copper jobs as builders of good will and prestige. You all know that the

well done copper job impresses all the neighbors with the futility of corrodible sheet metal work while its appearance, durability and satisfactory service make a loyal friend of its owner. With these facts in mind, the influence of the work of the Copper and Brass Research Association toward building prestige for the sheet metal industry will be more clear when I tell you that part of the 1928 publicity of the association will consist of advertising appearing, during the winter and spring months, in approximately 200,000,000 copies of newspapers in the leading cities through the United States; in national magazines and in trade and technical publications. The thought I want to leave with you is that this huge publicity directs the attention of the building owners, buyers or builders to copper and the excellence of the service given by copper work. That stimulates appreciation of copper service and makes copper jobs more effective as builders of good will and prestige for the sheet metal industry.

Branch Offices Speed Up Work

Along with all this, branch offices of the association have been established in St. Louis, serving the Middle West, and at Los Angeles, serving the coast. These, with our home office at 25 Broadway, make it possible to promptly give the public—your customers—any information about copper, brass or bronze which they request. This service, extended as it has been, works to build prestige because all requests for information are handled with courtesy and dispatch. It is free to architects and contractors and the public. In itself it has grown to be a valuable contribution toward building good will and prestige for your industry.

Our copper roofing manual and handbook on copper flashings are familiar to most of you. Both of these are in their third edition so that 40,000 of them are being used by architects, builders and sheet metal workers throughout the country. Compiled, as they were, with

the assistance of many prominent sheet metal contractors and based on the best practice of their experience, these books have done much to standardize the design of flashings and roof work. Directly they are responsible for better copper work, and good copper jobs are always prestige builders for the industry.

Bulletin Also an Aid

The *Copper and Brass Bulletin* is also a medium of great importance to your industry. In it are shown many of the countless thousands of copper jobs which illustrate the harmony wrought by the skill of the sheet metal artisan and the permanence and beauty which is characteristic of copper work. By pictorial presentation and terse descriptive matter the message of the sheet metal industry is forcefully brought home to the 40,000 or 50,000 readers of the *Bulletin*—nearly all of whom are in some way interested in building operations or maintenance of buildings. Foremost among mediums of its kind; enriched with messages about metals which are fundamentally right and correct for the best sheet metal practice, every issue of the *Bulletin* does its full share of good will and prestige building for the sheet metal industry.

Among our other activities the research experimental work initiated and supported by our association and being carried on under our general supervision at the Bureau of Standards, Washington, D. C., is of great importance to the sheet metal industry. Practically all of this work at the Bureau of Standards is being done with sheet copper to determine the facts about the proper size of sheet to use for copper roofings and gutters; the best method of fastening sheets; relative strength of soldered seams; studies of failure phenomena and of gutter, leader and outlet design; physical properties of sheets of various thicknesses; strength of corrugated sheets when used for roofing; also to gather as much data as we can on the action, movement, strength and general characteristics of sheet

copper roofing when exposed to weather and temperature variables.

This experimental research work has been going forward for the past three years. The results so far are very encouraging. Much information of value has been developed. More of equal importance and interest will be developed. All of it, when thoroughly proven and checked as to accuracy, will be released for the information and advantage of the sheet metal industry and all others interested in building and building operations.

So far I have briefly sketched for you a general outline of our activities. While its purpose, that of selling more copper, is selfish, it does help the sheet metal industry and it is our definite policy to extend our help to you in every way we can. We want to work with you; we want you to know and to feel that we are working with you; and we want you to feel entirely free to call on us as often as you care to for any information you may need about copper, brass or bronze.

Milcor Holds 1928 Sales Convention at Milwaukee

*Many Inspirational Talks Were Heard—
New Men Fraternize With Old*

THE 1928 convention of the sales representatives and branch executives of the Milwaukee Corrugating Company was held on January 3, 4, 5, 6 and 7 at the home office, Milwaukee, Wisconsin.

Sessions of the convention were devoted to instruction and discus-

sion on each of the eight major manufacturing divisions of the Milwaukee Corrugating Company. The sessions devoted to products of the heating division were led by L. H. Soper, Manager of the furnace pipe and fittings, stove pipe and elbows department. R. S. Schmieder, Manager of the ceiling, shingle and cornice department, had charge of the sessions on products of the

the Milwaukee Corrugating Company being one of the largest distributors of this famous iron. Bennett Chapple, D. M. Strickland and G. W. Breiel of The American Rolling Mill Company were on hand with interesting talks on the Armco merchandising plans for the coming year.

F. A. Dale, the Milcor Sales Promotion Manager, who has recently joined the Milcor organization, outlined his plans for sales promotion for the coming year.

On Friday evening, January 6, the annual Milcor sales banquet was held at the Wisconsin Club. A. J. Luedke, Secretary and Assistant Treasurer of the Milwaukee Corrugating Company, was toastmaster. Short inspiration talks were given by President Louis Kuehn and by Vice President and General Sales Manager J. H. Christman. The address of the evening was given by L. D. Stocking, a character analyst, who talked on "Size Up Your Buyer—and How."

Movies of the 1927 Milcor sales convention, taken personally by Mr.



Group of Salesmen and Executives of the Milwaukee Corrugating Company During Recent Sales Convention Held in Milwaukee

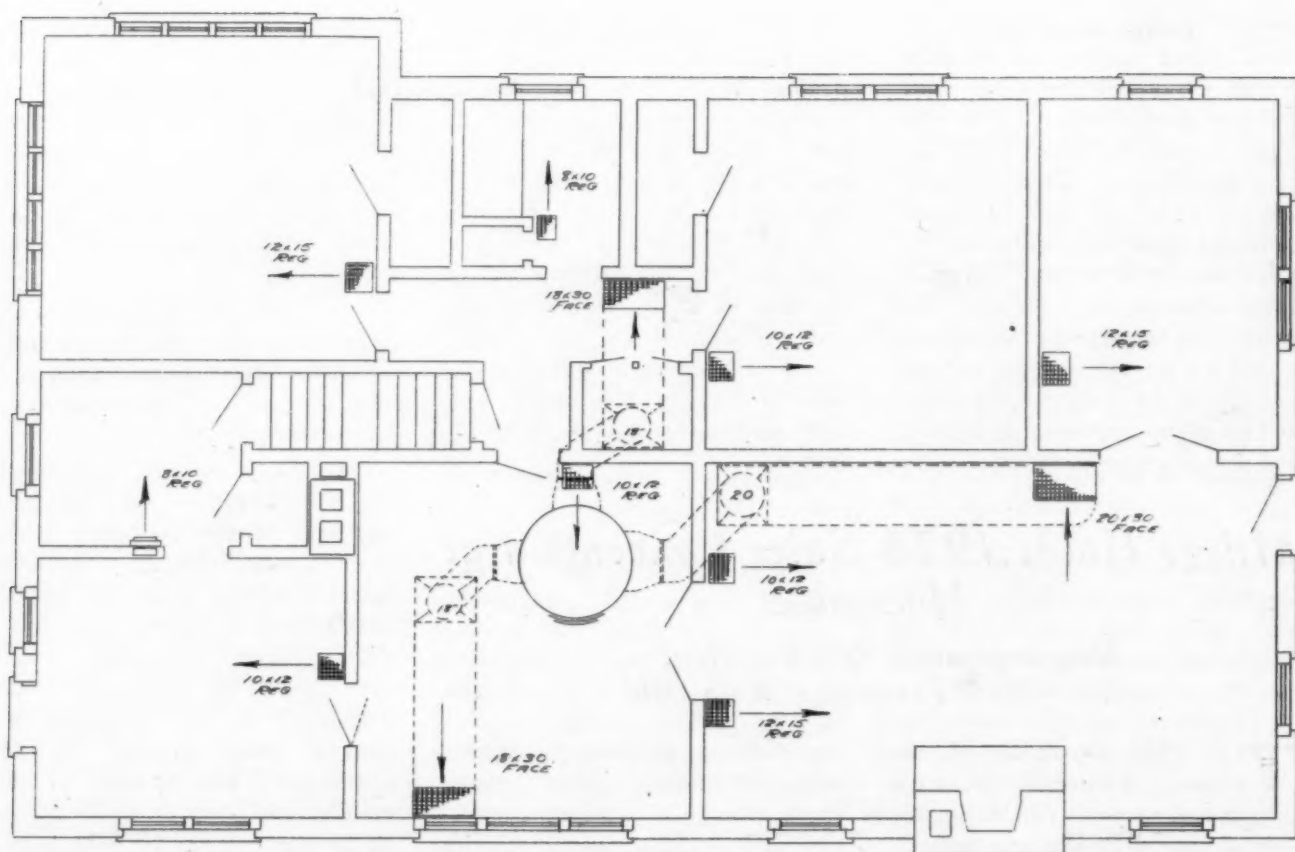
sion on each of the eight major manufacturing divisions of the Milwaukee Corrugating Company. The sessions devoted to products of the heating division were led by L. H. Soper, Manager of the furnace pipe and fittings, stove pipe and elbows department. R. S. Schmieder, Manager of the ceiling, shingle and cornice department, had charge of the sessions on products of the

on Milcor metal lath, corner bead and other Milcor fireproof building products. J. H. Christman, Vice President and General Sales Manager of the company, led the sessions devoted to general line products, including corrugated roofing, sheets, eaves trough, conductor pipe, trimmings, etc.

One half day of the convention was devoted to Armco ingot iron,

Luedke, and a film showing the Dempsey-Tunney fight were shown by Mr. Luedke.

The convention was voted a huge success. Besides creating selling and coöperative inspiration for all, the convention made the new men in the Milcor organization acquainted with their co-workers and made the old members better acquainted with each other.



Showing Correct Method of Distributing the Cold Air Returns to the Furnace

Incorrect Location of Cold Airs One Cause of Faulty Circulation

Distribution of Cold Airs Must Be as Equal as Possible

UP to this time very little has been written relative to locating return air registers, although it is a recognized fact that poor return air systems are responsible for the failure of many heating plants, according to the December issue of the Gas Draft, the Meyer Furnace Company publication.

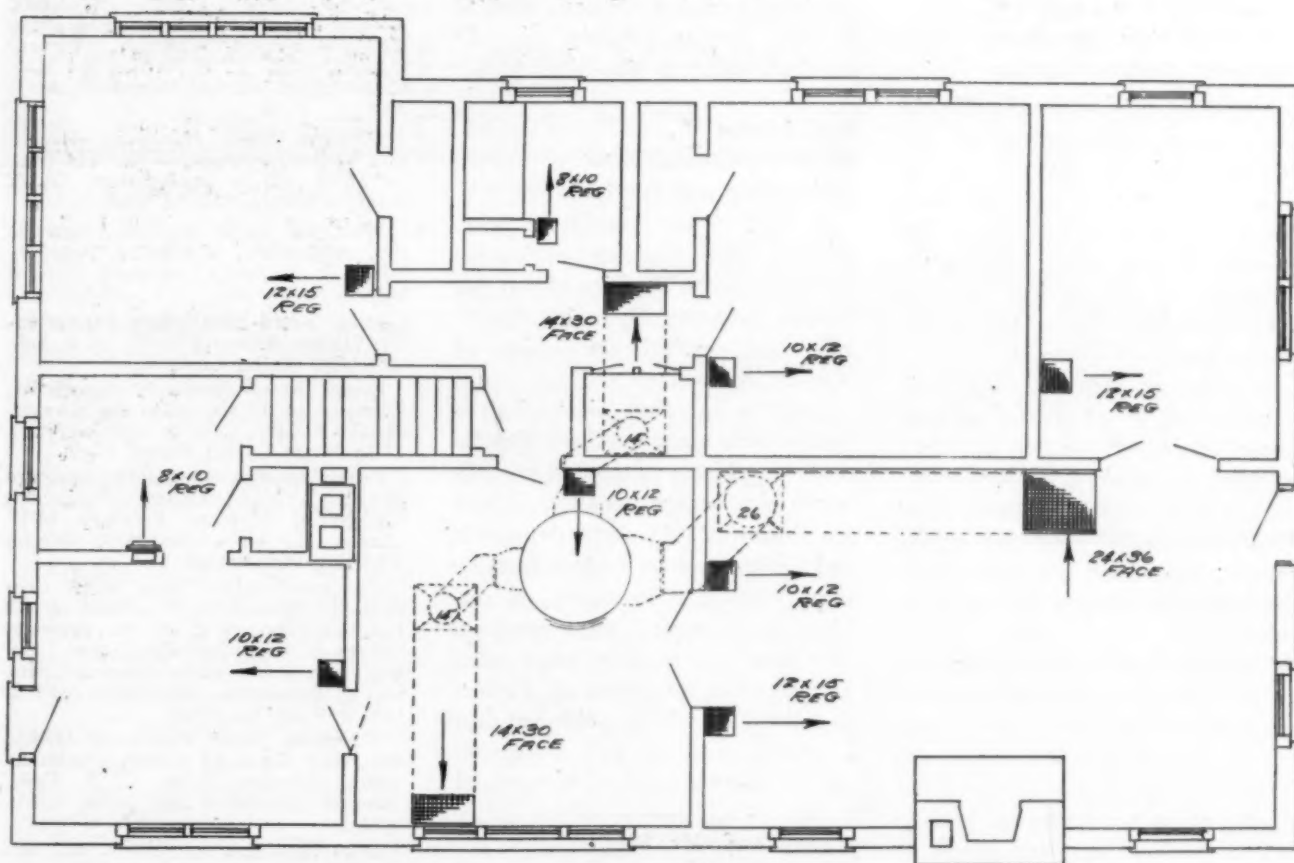
"Of course we all know that the combined area of the return air ducts should be at least equal to the combined area of warm air pipes; also that 10 to 20 per cent excess of area of all warm air pipes to allow for friction and resistance in ducts is very good practice.

"Knowing the correct or required area, the next step is to properly locate register faces or grills so as to permit the free flow of this amount

of air back to the furnace. As previously pointed out herein, there is little published information on the subject of properly locating return air registers, and so it is left up to the designer, contractor and installer to use good judgment in determining the proper locations of these faces.

"With it being common practice to use one or more return air openings and ducts, particular care should be taken on the single register and duct jobs, because the entire performance of a job in such case depends upon the one return air duct, and it should be so centrally located that all return air from various rooms will readily find its way to this single opening, and back to the furnace with the least amount

of resistance. Of course, a system of two or more return air ducts is desirable, as the air can be taken from several points in the building and delivered or distributed equally around the furnace casing; thus also eliminating floor drafts to a minimum. But here again considerable thought should be given to properly locating the register faces, and to see that they are properly proportioned. Take, for instance, a six or seven room house having three return air ducts; each should be so located as to take care of approximately two of the rooms, and the area of the ducts should be as nearly equal as possible or approximately 10 per cent in excess of the warm air piping. For example, it would not be good practice to have



Illustrating the Incorrect Method of Apportioning the Cold Air Returns. The Total Number of Square Inches of Cold Air Area Remains the Same in Both Correct and Incorrect Layouts

one of the ducts taking care of two rooms and handling two-thirds of the air supply to the furnace while the other two ducts took care of the remaining four or five rooms, but only one-third of the air supply. Such a job would not be considered balanced, and herein lies the secret of a successful or unsuccessful system.

"The accompanying sketches serve to better explain the proper proportioning and locating of return air registers and ducts."

Referring to the two illustrations presented herewith representing correct and incorrect procedure in locating the cold air ducts, we see what has been done in regard to re-locating the cold air returns.

In the plan marked "incorrect way" there are three cold air returns, but for some reason or other the installer deemed it necessary to have a 24x36-inch face, two 14x30-inch faces, and one 26-inch and two 14-inch round ducts, respectively. This arrangement proved to be an unequal division of the cold air.

Therefore the system was rearranged, changing the 24x36-inch face to a 20x30-inch face, and the 26-inch duct to a 20-inch duct. The two 14x30-inch faces were changed to 18x30-inch and the two 14-inch ducts were changed to 18-inch ducts. In this way the cold air has not been increased, but the distribution has been changed to draw it more evenly from all parts of the house.

From this it is seen that, although a man may have the correct amount of cold air returning to the furnace, his distribution of the cold air faces may be such as to produce a sluggish or uneven circulation.

"Furnace Explodes," Says Newspaper, but It Was a Boiler Instead

Here's a man who not only lost out on a deal of trading his home for another, but suffered material damage to the extent of \$1,200, to say nothing of the narrow escape from injury to his family, all because he had a steam boiler instead

of a warm air furnace in his basement.

R. H. Vandavelde, 113 Market Street, Dyersburg, Tennessee, calls our attention to an article that appeared recently in the *Memphis Commercial Appeal* under the heading, "Furnace Explodes; Partly Wrecks Homes." After telling all about the details of the accident, mentioning a furnace several times, the writer of the article gives the cause as follows: "The fire department was called out following the explosion. Damage was estimated at \$1,200." Now here comes the secret of the whole story: "It is believed the explosion was caused by the low level of the water in the boiler."

So in the first place it wasn't a furnace at all that exploded; it was a steam boiler, but evidently the news reporter did not know the difference. Because of his ignorance the public of Memphis, Tennessee, is led to believe that a furnace is unsafe because it is apt to explode at any time.

**Richardson & Boynton Co.,
New York City, Introduce
"Colored" Square Furnace**

There has been a great deal said and written recently about the necessity for the greater use of color in connection with the marketing of warm air furnaces. The thought is that warm air furnace installers are not making use of a very important ally, color, in the sale of warm air furnaces.

In order to assist the warm air furnace installer to greater sales by means of the introduction of colors in warm air furnace casings, Richardson & Boynton Company, New York City, have produced a new square cased warm air heater with the additional feature that it is in color.

The idea back of the whole thing in the production of this colored furnace, a bright blue, is to clean up the basement, rid it of the old dingy looking iron heater and put in its place an attractive heating system that will bear the closest of scrutiny with the other furniture in the home. In other words, appeal to the public with color.

The Richardson & Boynton Company are making a very attractive offer in introducing this new furnace, and every warm air furnace installer should avail himself of the opportunity to find out what that offer is by writing to them immediately for complete details. The introduction is called "A Bright Spot in Heating History." Do not neglect to investigate this departure from the accepted course in warm air heating. It means a great deal to you in the way of increased sales.

**Follansbee Brothers Co.
Add Two Men to
Milwaukee Sales Force**

Follansbee Brothers Company, Pittsburgh, Pennsylvania, have added two salesmen to their Milwaukee branch, according to H. H. Wherry, District Manager.

Walter Diedrich will travel in the southern part of Wisconsin and northern Illinois, while George Hess will give the company similar representation in the city of Milwaukee and its suburbs. A material in-

crease in business has been enjoyed by this company during the past year, according to Mr. Wherry.

**Initial Issue of
Premier Pictorial Both
Interesting and Instructive**

A copy of the *Premier Pictorial*, the very interesting little publication launched by the Premier Warm Air Heater Company, Dowagiac, Michigan, has reached the office of AMERICAN ARTISAN.

True to its name, pictorial, it is replete with many excellent illustrations on subjects of interest to every warm air furnace installer. There are stories on sales methods, stories and illustrations on furnace installation practice, illustrations of displays at fairs, and shop windows. The issue also contains many other helpful hints for warm air furnace installers. It will be published once a month, and is well worth the twelve minutes required for perusal.

**Thank You, Mr. Ritz.
We Appreciate
the Compliment**

Mr. Chas. E. Kennedy,
% THE AMERICAN ARTISAN,
Chicago, Illinois.

My dear Kennedy:

I apologize for this late acknowledgment of the receipt of the AMERICAN ARTISAN, which you so kindly sent me, gratis.

I want to say that the AMERICAN ARTISAN has been responsible for revamping the warm air installation in my new home, which is at present under construction, as I gained a few new ideas from the magazine which I have incorporated in my present plans.

Thanks again, and if I can be of any service to you, in any way, please do not fail to call on me.
Dayton, O. CLEVE W. RITZ.



Indiana Retail Hardware Association, Indianapolis, January 31 to February 3. The Claypool Hotel will be convention headquarters and meeting place. G. F. Sheely, secretary, 911 Meyer-Kiser Bank Building, Indianapolis.

Master Sheet Metal Contractors' Association of Wisconsin, Republican Hotel, Milwaukee, Wisconsin, February 6 and 7, 1928. L. F. Reinke, 514 Market Street, Milwaukee, Wisconsin, secretary.

Michigan Retail Hardware Association, Detroit, February 7-10. The Statler Hotel will be headquarters. A. J. Scott, secretary, Marine City.

Wisconsin Retail Hardware Association, Auditorium, Milwaukee, February 7-10. P. J. Jacobs, secretary, Stevens Point.

Iowa Retail Hardware Association, Des Moines, February 14-17. A. R. Sale, secretary, Mason City.

Illinois Retail Hardware Association, February 14, 15 and 16, at the Sherman Hotel, Chicago. Leon D. Nish, secretary, 14-16 North Spring Street, Elgin.

Pennsylvania and Atlantic Seaboard Hardware Association, Philadelphia Commercial Museum, February 14-17. Sharon E. Jones, secretary, Wesley Building, Philadelphia.

Carolinas-Virginia Sheet Metal Contractors' Association, Charlotte, North Carolina, February 15 and 16. Secretary George I. Ray, Charlotte, North Carolina. Convention headquarters at Chamber of Commerce. Convention will be held in Hotel Charlotte.

Minnesota Retail Hardware Association, New Municipal Auditorium, Minneapolis, February 21-24. C. H. Casey, manager, Nicollet at 24th Street, Minneapolis.

Ohio Hardware Association will hold its 1928 convention and exhibit at Toledo, February 21-24. James B. Carson, secretary, 411 Mutual Home Building, Dayton.

South Dakota Retail Hardware Association, Coliseum Building, in Sioux Falls, February 27, 28, 29, 1928. Charles H. Casey, Secretary, Nicollet at 24th Streets, Minneapolis.

Michigan Sheet Metal & Roofing Contractors' Association, Kalamazoo, Michigan, March 5, 6, 7, 8, 1928. Secretary, Frank E. Ederle, 1121 Franklin Street, Grand Rapids, Michigan.

Illinois Sheet Metal Contractors' Association, Fort Armstrong Hotel, Rock Island, April 11 and 12. Secretary Fred J. Graeff, 222 East Washington Street, Springfield, Illinois.

National Warm Air Heating and Ventilating Association, Hotel Stevens, Chicago, Illinois, April 24, 25 and 26, 1928. Secretary Allen W. Williams, 174 East Long Street, Columbus, Ohio.

National Association of Manufacturers of Heating and Cooking Appliances, Hotel Statler, Detroit, Michigan, May 9 and 10. Secretary Allen W. Williams, 174 East Long Street, Columbus, Ohio.

Arkansas Retail Hardware Association, Little Rock, during the month of May, exact dates for the meeting to be determined later. L. P. Biggs, secretary, 815-16 Southern Trust Building, Little Rock.

National Association of Sheet Metal Contractors of the United States, the Ohio Sheet Metal Contractors' Association, joint convention, Hotel Statler, Cleveland, Ohio, May 22, 23, 24 and 25, 1928. J. M. Saunders, 215 Plymouth Building, Cleveland, Ohio, convention chairman.

Random Notes and Sketches

By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence"—Carlyle.

Druggist: "Here, sir, is your package. Seventy-five cents, please."

Creston W. Barnes, Charlie Glessner's right-hand man (placing nickel on counter): "Thank you. There is your nickel."

Druggist: "But I said seventy-five!"

Creston Barnes (going out the door): "Well, there's your five cents!"

Druggist: "Well go on, you young fool, I made three cents anyway."

* * *

Out of the Mouths of Babes

Lady: "You say your mother is ill today?"

Johnny: "Yessum, sumpin' the matter with her throat."

Lady: "Well, that's too bad. She was well when I visited her yesterday."

Johnny: "Huh! It's your fault, then. Ma said you always give her a pain in the neck."

* * *

"Dear Doc," wrote Bill Busch of Detroit: "What kind of cigars would you recommend as the best throat remedy? I want to become a singer. I've been trying Too-fer-a-nickel Brand, but without satisfactory results."

Answer: "You have it all wrong, Bill Busch. That idea of voice production applies only to cigarettes."

* * *

Since the first issue of *Premier Pictorial* has been in the mail, its worthy editor, our old friend "Buck" Taylor, has been the recipient of much advice. Big hearted "Buck" has passed on to me the following because he says it may help the ARTISAN editor.

Advice to Editors

Expert advice on how to run your paper.*

Dear Editor: How can I increase my circulation?

Answer: Try rubbing yourself with a Turkish towel.

Dear Editor: My machine operator goes off on a spree every couple of weeks and I can't get my paper out on time. How can I stop him from drinking?

Answer: Close his mouthpiece by feeding him bum metal.

Dear Editor: Some of my subscribers don't like my editorials. What had I better do about it?

Answer: Kill 'em.

Dear Heavy Stuff: My wife wants me to print her poetry and she keeps me awake nights reading the drivel. What would you recommend for relief?

Answer: Rock her to sleep. Use a big rock.

*Into the ground.

* * *

To Be Exact

Noah Webster was once discovered by his wife kissing a pretty maid. "I am surprised, Noah," said his wife.

"No, my dear," Noah replied. "I am surprised. You are astonished."

* * *

Help!

Benedict: "My wife's favorite book before we were married was 'The Three Musketeers,' and we had triplets."

Newlywed: "Good heavens, my wife's favorite was 'The Birth of a Nation.'"

* * *

I had a very pleasant visit on Monday of this week with Peter Kunold, 342 Claim Street, Aurora, Illinois, who came into our office seeking a little information which we were very glad to give him. Mr. Kunold was formerly in the sheet metal contracting business in Omaha, Nebraska, and was well acquainted with the late John H. Hussie. I surely enjoy these visits very much indeed and I hope that other men in the warm air heating and sheet metal business when in Chicago will not hesitate to drop in to see us.

Here's a little poem used for advertising purposes by the C. L. Cross Lumber Company, Chicago.

How Lindbergh Did It

By James W. Foley

Vile udder folks talkin' an' vunderin' how,
An' bane gettin' ready purty soon,
but not now,
By yimminy, Lindbergh, he yumped up an' vaded
Right out in the air an', by jingo, he made it.

Vile all of dem fallers vas vatin' on shore,
By yimminy, Lindbergh, he vaited no more.
He lifted up his nose an' he lift up a ving
An' he yump in the air an' he made it, by ying.

He come from the Vest an' come purty darn kvick,
An' he yump in the cockpit an' pull on a stick,
An' before all dem fallers could say any vord,
He vas up in the air an' vent off like a bird.

He said dis here vaitin' vas purty darn dull,
So he yumped in his ship an' he wave and say, "Skol!"
An' he fly to the north an' the east an' don't drop.
An' he made it to Paris, by ying, in one hop!

Ay lak dis man Lindbergh, a dandy fine kid.
Ay lak him, by yingo, ay lak vat he did.
Vile dem fallers talkin' just vaited an' vaited,
Dis Lindebrgh, he yump up, by yingo, an' made it.

—New York Times.

* * *

W. C. Markle, Secretary National Sheet Metal Contractors: "I'd like to see one of your new cars."

Salesman: "Six or eight?"

Mr. Markle: "Oh, one will do very nicely, for the present."

Trend in Steel Market Is Upward—Consumption Maintains Increase Noted at Beginning of Year

Pig Iron Prices Are Steady—New Business in Nonferrous Metal Market Is Light

STEEL enters a period when consumers are more occupied with working off the heavy tonnages they have been taking in or specifying the past thirty days than they are in making fresh commitments.

Consumption unquestionably is maintaining the rate of increase ushered in with the new year and, save for this easiness in new orders for some products—a condition not uncommon after such brisk contracting—the trend in all departments is up. Steel corporation subsidiaries are up to 83 per cent now, or five points higher than last week.

In steel prices the undercurrent is strongly upward. On bars, plates and shapes all makers now quote \$1 per ton higher, and while the new levels apply only to sales in the remainder of the quarter—a period for which most users are covered—present contracts are made the more attractive. It is reported that another advance of \$1 is contemplated on second quarter business.

Pig Iron

At Pittsburgh the dearth of pig iron buying is more pronounced. Usually in quiet times some inquiries present themselves for attention, but just now nothing is up to test the market.

Consumers continue to take iron due them on contracts. A few single carload or 100-ton sales of foundry grades are noted at \$17.25, base, valley. One seller claims to have received \$17.50, valley, for a small lot of malleable. A valley merchant stack sold 250 tons of bessemer iron at \$17.50, valley, and one lot of 200 tons at the same price. No interest is noted in basic, nominal at \$17, valley. Low phosphorus is unchanged at \$27, valley, for small lots.

The pig iron buying movement

at Chicago is continuing, with considerable second quarter tonnage in sight, as major first quarter needs are being filled. Inquiries for second quarter are becoming active, those for 300 to 600 tons being especially numerous. An inquiry is out from a Chicago melter for 1,000 tons, and another for 1,000 tons for a Milwaukee user. A western Michigan melter placed 1,000 tons of malleable.

The malleable situation is improving slowly. The foundry melt is gaining. Reported small sales to be shipped by boat next season are not disturbing the \$18.50, base, Chicago furnace price, to which leading sellers are adhering. Silvery sales are light. Charcoal iron sales are fairly active at \$24, furnace. It is reported January pig iron shipments may increase 20 per cent over December.

At Birmingham pig iron sales are about equal to production, but shipments fall short. Quotations continue at \$16, base, Birmingham. Indications are that there will be a rush in delivery in February and March.

Copper

Some copper slipped back to 14.00 cents, Connecticut, again, but the quantity obtainable was limited and for early shipment, while nearly all producers held firm at 14.12½ cents. Very little business has been done. Some metal has sold for Midwest delivery at 14.25 cents. Export sales have been more active than domestic, with the price unchanged at 14.50 cents c. i. f. European port.

Zinc

Prime Western zinc sold down to 5.60 cents, East St. Louis, for prompt, and 2½ points more for futures, but business was not large. On Monday the market looked a little firmer. The Joplin ore mar-

ket was unchanged at \$36 a ton with sales larger than output for the first time in many weeks except during the holiday shut-down:

Tin

Prices of tin turned upward several days ago as sharply as they had been going down. Short covering probably was one of the principal factors in the recovery. The Far East continued to sell down for a time, but became stronger on Saturday.

On Monday and Tuesday the Singapore market was closed and that may have been one reason for quietness here. On the other hand, users usually get out of the market when it rises rapidly, and this quietness resulted in a little sagging tendency from the top of the recovery.

Lead

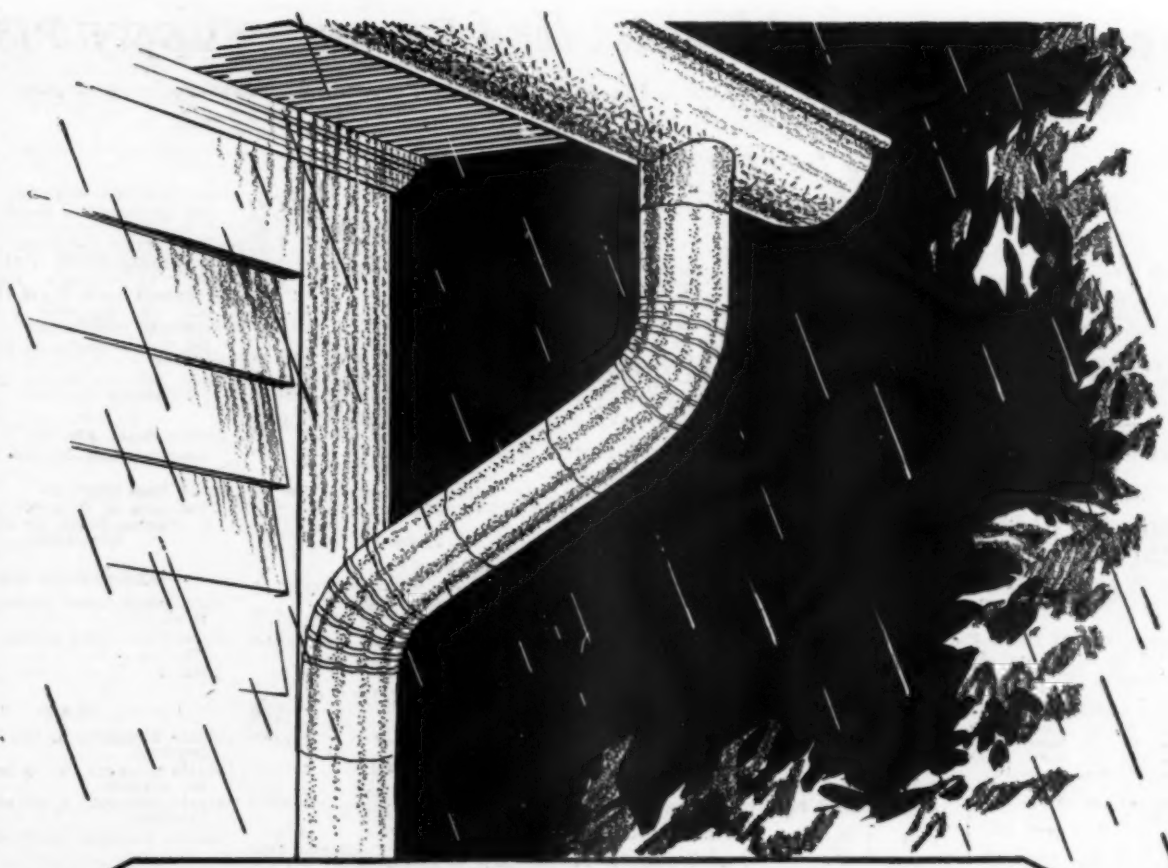
Lead prices are a little firmer, but without much change after some prompt metal went a shade under 6.30 cents, East St. Louis. The market has become active in the past few days, with all classes of users represented for prompt-February shipments.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$36.50; Commercial 45-55, \$33.50; plumbers, \$30.50; all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$15.50 to \$16.00; old iron axles, \$21.00 to \$21.50; steel springs, \$14.75 to \$15.25; No. 1 wrought iron, \$11.00 to \$11.50; No. 1, cast, \$12.75 to \$13.25, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, 3½ cents; cast aluminum, 13¾ cents.



LET IT POUR

Lupton Elbows shine when there's a good rainy day's work to do... Designed to discharge water quickly and reinforced to resist corrosion where leaves and sewer gas gather, Lupton Elbows pay out in good performance and durability. They are machine-made in one piece—always uniform and perfectly shaped. Specify them to your jobber and learn why they've been leaders for over fifty years.

DAVID LUPTON'S SONS COMPANY

Allegheny Ave. and Tulip St. • Philadelphia

LUPTON

ELBOWS  THAT FIT

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly.

METALS

FIG IRON	
Chicago Fdy.	
No. 2	\$12 50
Southern Fdy. No. 3	23 01
Lake Superior Charcoal	27 04
Malleable	15 50

FIRST QUALITY BRIGHT TIN PLATES	
IC 20x28 112 sheets	\$25 10
IX 20x28	29 60
IXX 20x28 56 sheets	16 20
IXXX 20x28	17 55
IXXXX 20x28	18 95

TERNE PLATES	
IC 20x28, 40-lb. 112 sheets	\$25 00
IX 20x28, 40-lb. 112 sheets	25 50
IC 20x28, 25-lb. 112 sheets	21 75
IX 20x28, 25-lb. 112 sheets	24 25
IC 20x28, 20-lb. 112 sheets	20 00
IX 20x28, 20-lb. 112 sheets	22 50
IC 20x28, 15-lb. 112 sheets	18 50

"ARMCO" INGOT IRON PLATES	
No. 3 ga. up to and including 1/4 in.—100 lbs.	\$4 55

COKE PLATES	
Cokes, 30 lbs., base, 20x28	\$12 50
Cokes, 30 lbs., base, 20x28	13 50
Cokes, 100 lbs., base, 20x28	14 00
Cokes, 107 lbs., base, IC	
20x28	14 30
Cokes, 135 lbs., base, IX	
20x28	16 40
Cokes, 155 lbs., base, 55	
20x28	9 20
Cokes, 175 lbs., base, 55	
20x28	10 05
Cokes, 195 lbs., base, 55	
20x28	20 90

BLUE ANNEALED SHEETS	
Base 10 ga. per 100 lbs.	\$2 50
"Armco" 10 ga. per 100 lbs.	4 00

ONE PASS COLD ROLLED BLACK	
No. 18-20	per 100 lbs. \$2 75
No. 22	per 100 lbs. 3 00
No. 24	per 100 lbs. 3 25
No. 26	per 100 lbs. 4 05
No. 27	per 100 lbs. 4 10
No. 28	per 100 lbs. 4 20
No. 29	per 100 lbs. 4 35
No. 30	per 100 lbs. 4 45

"ARMCO" GALVANIZED	
"Armco" 24	per 100 lbs. \$6 15

GALVANIZED	
No. 18	per 100 lbs. \$4 20
No. 18	per 100 lbs. 4 45
No. 20	per 100 lbs. 4 60
No. 22	per 100 lbs. 4 65
No. 24	per 100 lbs. 4 80
No. 26	per 100 lbs. 5 05
No. 27	per 100 lbs. 5 15
No. 28	per 100 lbs. 5 30
No. 30	per 100 lbs. 5 70

BAR SOLDER	
Warranted 50-50	per 100 lbs. \$24 50
Commercial 45-55	per 100 lbs. 21 50
Plumbers	per 100 lbs. 23 50

ZINC	
In Slabs	\$ 8 50

SHEET ZINC	
Cash Lots (500 lbs.)	\$12 00
Sheet Lots	13 00

BRASS	
Sheets, Chicago base	17 1/2 c
Mill base	13 c
Tubing, brass base	26 1/2 c
Wire, base	18 1/2 c
Reds, base	16 1/2 c

COPPER	
Sheets, Chicago base	22 1/2 c
Mill Base	21 1/2 c
Tubing, seamless base	25 1/2 c
Wire, No. 9, B & S Ga.	18 1/2 c
Wire, No. 10, B & S Ga.	19 c
Wire, No. 11, B & S Ga.	19 1/2 c
Wire, No. 9, B & S Ga. and heavier	18 1/2 c

LEAD	
American Pig	\$7 30
Bar	8 30
TIN	
Pig Tin	per 100 lbs. \$62 00
Bar Tin	per 100 lbs. 63 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS	
Paper up to 1/16	6c per lb.
Roll board	6 1/2 c per lb.
Mill board 3/32 to 1/4	6c per lb.
Corrugated Paper (250 sq. ft. to roll)	\$6 00 per roll

BRUSHES	
Hot Air Pipe Cleaning	
Bristle, with handle, each	\$0 85
Flue Cleaning	
Steel only, each	1 25

BURRS	
Copper Burrs only	40-5%

CEMENT, FURNACE	
American Seal, 5-lb. cans, net	\$ 40
American Seal, 10-lb. cans, net	80
American Seal, 25-lb. cans, net	2 00
Pecora	per 100 lbs. 7 51

CHIMNEY TOPS	
Adams' Revolving	
Wt. Doz. Price Doz.	
4 in.	21 lbs. \$11 60
6 in.	24 lbs. 11 50
7 in.	30 lbs. 13 50
8 in.	33 lbs. 15 00
9 in.	51 lbs. 16 50
10 in.	58 lbs. 18 00
12 in.	66 lbs. 22 00
14 in.	110 lbs. 25 00

CLINKER TONGS	
Front Rank, each	\$0 75
Per doz.	8 40

CLIPS	
Damper	
Adams No.-Rivet Steel, with tail pieces, per gross	\$3 00
Tail pieces, per gross	2 50

COPPERS—Soldering	
Pointed Roofing	
3 lb. and heavier	per lb. 40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 48c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRACKETS	
Chicago Steel Bending	
Nos. 1 to 6B	Net

CUT-OFFS	
Gal., plain, round or cor. rd.	
26 gauge	30%
28 gauge	35%

DAMPERS	
"Yankee" Hot Air	
7 inch, each 30c, doz.	\$1 75
8 inch, each 25c, doz.	2 40
9 inch, each 30c, doz.	2 75
10 inch, each 32c, doz.	3 00

Smoke Pipe	
7 inch, each	\$0 25
8 inch, each	40
9 inch, each	50
10 inch, each	60
12 inch, each	90

ADAMS No. 1 CHECK	
Check and Collar Complete	
8 inch, each	2 00
9 inch, each	2 25
End Check Only	
8 inch, each	1 60
9 inch, each	1 85
Collar Only	
8 inch, each	50
9 inch, each	65

No. 2 CHECK	
8 inch, each	1 00
9 inch, each	1 00
10% Disc. on Adams No. 1 and No. 2 Check	
Diamond Smoke Pipe	
7 inch, doz.	\$ 2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	6 00

Adams' Sheet Metal	
7 inch, doz.	\$ 1 60
8 inch, doz.	2 20
9 inch, doz.	2 40
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

DIGGERS	
Post Hole	
Iwan's Split Handle (Eureka)	
4-ft. Handle	per doz. \$14 00
7-ft. Handle	per doz. 36 00
Iwan's Hercules pattern, per doz.	14 90

EAVES TROUGH	
Galv. Crimpedge, crated 75 & 5%	
Zinc, "Barnes"	60%

ELBOWS	
Conductor Pipe	
Galv. plain or corrugated, round flat Crimp.	
28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

Galv. & Terne Steel	
Plain Rd. and Rd. Corr.	
28 Ga.	60%
26 Ga.	45%
24 Ga.	15%
Square Corrugated	
No. 28 Gauge	50%
26 Gauge	35%

Fertile Elbows	
Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested solid	70 & 5%

Sq. Corr., A. & B. & Octagon	
28 Ga.	50%
26 Ga.	35%
Fertile	
1", 1 1/4", 1 1/2"	45%
Copper	
16 oz., all designs	50%

Zinc—	
All styles	60%

ELBOWS—Stove Pipe	
1-piece Corrugated, Uniform Blue	
"Milcor" No. 28 Gauge.	Doz.
5-inch	\$1 05
6-inch	1 20
7-inch	1 75

Special Corrugated	
6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue	
"Milcor" No. 28 Gauge. Uniform Blue.	
5-inch	\$1 05
6-inch	1 75
7-inch	2 10

WOOD FACES—50% off list.	
--------------------------	--

FENCE	
726-6-12 1/2% (100 rods)	\$28 60
1948-6-14 1/2% (100 rods)	43 62

FILES AND RASPS	
Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	60%

FIRE POTS	
Clayton & Lambert's	
East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Amarillo, San Angelo and Laredo, Texas	52%
West of above boundary	45%

Geo. W. Dwyer Mfg. Co.	
No. 02 Gasoline Torch, 1 qt.	\$ 5 55
No. 0250, Kerosene, or Gasoline Torch, 1 qt.	7 50
No. 10 Tinner's Furn. Square tank, 1 gal.	12 00
No. 15 Tinner's Furn. Round tank, 1 gal.	12 00
No. 21 Gas Soldering Furnace	2 00
No. 110 Automatic Gas Soldering Furnace	10 50

Double Blast Mfg. Co.	
Gasoline, Nos. 25 and 35	60%

Quick Meal Stove Co.	
Vesuvius, F. O. B. St. Louis 50%	
(Extra Disc. for large quantities.)	

GLASS	
Single Strength, A. 25-in. brackets	87%
Single Strength, A. 34 to 40-in. bracket	84%
Single Strength, A. all other brackets	89%
Double Strength, A. all sizes	90%

HANGERS	
Conductor Pipe	
Milcor Perfection Wire	25%
Milcor Triplex Wire	10%
Eaves Trough	
Milcor Steel (galv. after forming) List	plus 12 1/2%
Milcor Selflock E. T. Wire, List	plus 50%

HOOKS	
Box	
V. & B. No. 1, each	\$0 26
Conductor	
"Direct Drive" Wrought Iron for wood or brick	15%
Hay	
V. & B. No. 1, each	\$0 26

HUMIDIFIER	
"Front-Range" Automatic	
In single lots	50%
In lots of 10 or more	50-6%
In lots of 25 or more	50-10%
Vapor pump, etc., each	50%

LIFTERS	
Stove Cover	
Coppered	per gro. \$6 00
Alaska	per gro. 4 75

MALLET	
Tinners	
Hickory	per doz. \$2 25

MITRES	
Galvanized steel mitres,	
28 Ga.	70
26 Ga.	60-30

NAILS	
Cut Steel	\$4 25
Cut Iron	4 25

Wire	
Common	2 95
Cement Coated	2 95

(Continued on Page 168)

TAYLOR MADE

Made by Taylor means the BEST in terne plate making—judged by more than a century's experience. And, whether it be terne plate made ENTIRELY BY HAND—by an old Welsh hand dipping process and branded

TARGET AND ARROW ROOFING TIN

(Formerly known as Taylor's "Old Style")

or whether, for reasons of economy and to meet the keen competition in 40-lb. coated plates, it be made entirely by modern machinery and branded

TAYLOR'S EXTRA COATED

40 LBS. COPPER BEARING O. H.

you can depend upon it that you are getting the BEST in its respective class. Ample stocks of both of these plates are carried by distributors located all over the U. S. A.

N. & G. TAYLOR COMPANY

BROAD AND ARCH STREETS
PHILADELPHIA, PA.

Headquarters for Good Roofing Tin Since 1810

SPECO

SOLID SAL AMMONIAC

for

TINNING
and
CLEANING
BETTER
and
QUICKER

WRITE FOR FREE SAMPLE

SPECIAL CHEMICALS CO.
WAUKEGAN, ILLINOIS



THE J. M. & L. A.
OSBORNE
CLEVELAND

MANUFACTURERS AND DISTRIBUTORS OF

"OSBORN QUALITY"

DYE STENCILED

28
HEAVY-26-GAUGE
24

"GALVANIZED" or "LEAD COTE"

EAVES TROUGH
CONDUCTOR PIPE and HEADS

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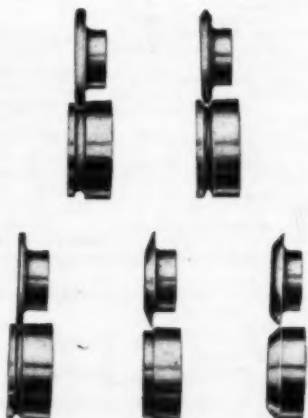
NETTING, POULTRY		ROOFING	
Galvanized before weaving	57 1/4-5%	Best grade, slate surf. prepared	\$ 30
Galvanized after weaving	52 1/4-4%	Best talc surfaced	3 65
		Medium talc surfaced	3 00
		Light talc surfaced	1 30
		Red Rosin Sheeting, per ton ..	\$7 00
FASTE		SCREWS	
Asbestos Dry Paste:		Sheet Metal	
200-lb. barrel	\$16 00	7, 1/4x1/4, per gross	\$0 52
100-lb. barrel	8 75	No. 10, 1/4x3/16, per gross.	45
35-lb. pail	3 50	No. 14, 1/4x1/4, per gross.	49
10-lb. bag	1 10		
5-lb. bag	60	SHEARS, TINNERS & MACHINISTS	
2 1/2-lb. cartons	35	Viking	\$22 00
PIPE		Lennox Throatless	
Conductor		No. 18	24%
Cor. Rd., Plain Rd., or Sq.		Shear blades	10%
		(f. e. b. Marshalltown, Iowa)	
Galvanized		SHIELDS, REGISTER	
Crated and nested (all gauges)	75-2 1/4%	No. 1 "Gem" floor	\$12 00 doz.
Crated and not nested (all gauges)	70-15%	No. 2 "Gem" wall	6 00 doz.
Furnace Pipe		SHOES	
Double Wall Pipe and Fittings	60%	Galv. 28 Gauge, Plain or corrugated round flat crimp	60%
Single Wall Pipe, Round		26 gauge round flat crimp	45%
Galvanized Pipe	60%	24 gauge round flat crimp	1
Galvanized and Tin Fittings	60%		
Lead		SNIPS, TINNERS	
Per 100 lbs.	\$12 50	Clover Leaf	40 & 10%
		National	40 & 10%
Stove Pipe		Star	50%
"Milcor" "Titelock" Uniform Blue		Milcor	Net
Stove		SQUARES	
28 gauge, 5 inch U. C.	10 50	Steel and Iron	Net
28 gauge, 6 inch U. C.	11 00	(Add for bluing, \$3 per doz. net.)	
28 gauge, 7 inch U. C.	13 00	Mitre	Net
30 gauge, 5 inch U. C.	9 00	Try	Net
30 gauge, 6 inch U. C.	10 00	Try and Bevel	Net
30 gauge, 7 inch U. C.	12 00	Try and Mitre	Net
T-Joint Made up		Fox's	per doz. \$6 00
6-inch, 28 ga. per doz.	\$ 4 00	Winterbottom's	10%
All Zinc		STOPPERS, FLUE	
No. 11, all styles	60%	Common	per doz. \$1 10
		Gem, No. 1	per doz. 1 10
		Gem, flat, No. 3	per doz. 1 00
POKERS, STOVE		VENTILATORS	
Wrt Stave, str't or bent,	per doz. \$0 75	Standard	30 to 40%
Nickel Plated, coil handles,	per doz. 1 10		
POKERS, FURNACE		WIRE	
Each	\$0 50	Plain annealed wire, No. 8	
PULLEYS		per 100 lbs.	\$3 05
Furnace Tackle	per doz. \$0 60	Galvanized barb wire, per	
Furnace Screw (enameled)	per doz. 75	100 lbs.	3 90
		Wire Cloth—black painted,	
Ventilating Register		12-mesh, per 100 sq. ft.	1 65
Per gross	9 00	Cattle Wire—galvaniz'd catch	
Small, per pair	30	weight spool, per 100 lbs.	3 65
Large, per pair	50	Galvanized Hog Wire, 80 red	
PUTTY		spool, per spool	3 18
Commercial Putty, 100-lb.		Galvanized Plain Wire, No.	
Kits	\$3 40	9, per 100 lbs.	3 40
QUADRANTS		Stove Pipe, per stone	1 10
Malleable Iron Damper	10%		
REDUCERS—Oval Stove Pipe		WRINGERS	
Per Doz.		No. 700, Guarantee	each \$5 10
7-8, 28-gauge, 1 doz. in		No. 770, Bicycle	each 4 70
carton	\$ 2 00	No. 670, Domestic	each 4 35
REGISTERS AND BORDERS		No. 110, Brighton	each 3 70
Baseboard, Floor and Wall.		No. 750, Guarantee	each 5 10
Cast Iron	20%	No. 740, Bicycle	each 4 70
Steel and Semi-Steel	40-10%	No. 22, Pioneer	each 2 40
Baseboard	40-10%	No. 1, Superb	each 2 65
Wall	40-10%		
Adjustable Ceiling Ventilators	40-10%		
Register Faces—Cast and Steel			
Japaned, Bronzed and			
Plated, 4x6 to 14x14	40-10%		
Large Register Faces—Cast,			
14x14 to 35x42	60-10%		
Large Register Faces—Steel,			
14x14 to 35x42	65-10%		
RIDGE ROLL			
Galv. Plain Ridge Roll,			
br'd	75-10-5%		
Galv. Plain Ridge Roll			
crated	75-10%		
Globe Finials for Ridge			
Roll	50%		



LEARN ABOUT THIS "WONDER" MACHINE



Write for Booklet No. 45



The Pexto New Universal Combination Rotary Bench Machine

Interchangeable Rolls That Make Possible Turning, Wiring,
Burring and Elbow Edging With the One Machine.

THE PECK, STOW AND WILCOX COMPANY, SOUTHTON, CONN., U. S. A.

The NEW IMPROVED "STANDARD" Rotable Ventilator



Patents pending

This favorite cone-shaped ventilator is now improved in several important points.

The weight of the ventilator body is now carried on a concave thrust bearing nested in the apex of the conical body. This bearing turns upon the pivot point of the stationary center spindle.

The bronze Guide Bushings are now made of non-corrosive bronze which minimizes friction and any tendency to screech when body is rotating.

There are other new features. Write today for new catalog and price list.

STANDARD VENTILATOR CO., LEWISBURG, PA.

PERFORATED METALS



All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATING METAL

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5649 FILLMORE ST.-CHICAGO, ILL. U. S. A.
NEW YORK OFFICE: 114 LIBERTY ST.

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Forty-Four Years
Serving the
Sheet Metal Contractor
with

**SHEET METAL PRODUCTS
FOR BUILDINGS**

EARLE'S VENTILATOR

IMPROVED
REVOLVING



It runs in a self-lubricating bearing that is not affected by heat or cold. It is noiseless and produces an upward current of air. No down draft. It will satisfy and give you a good profit.

ASK YOUR NEAREST JOBBER

BERGER BROS. CO.

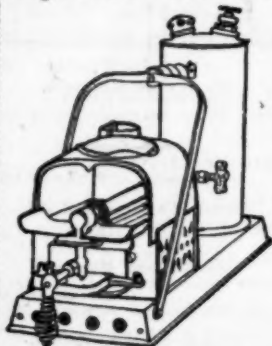
229 to 237 ARCH STREET
WAREROOMS AND FACTORY: 100 TO 114 BREAD STREET
PHILADELPHIA, PA.
Manufacturers of "Quaker City" line of Miter, Ends, Caps and Outlets

2

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- Eaves Trough.**
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Berger Bros. Co.,
Philadelphia, Pa.
Burton Co., The W. J.,
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Berger Co., L. D.,
Philadelphia, Pa.
Lupton's Sons Co., David,
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Hess-Snyder Co., Massillon, Ohio
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Columbus, Ohio
Langenberg Mfg. Co.,
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Lennox Furnace Co.,
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Marshalltown Heater Co.,
Marshalltown, Iowa
Majestic Co., The,
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- Meyer Furnace Co., The, Peoria, Ill.**
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Monitor Furnace Co.,
Cincinnati, Ohio
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Mueller Furnace Co., L. J.,
Milwaukee, Wis.
Oakland Foundry Co.,
Belleville, Ill.
Peerless Foundry Co.,
Indianapolis, Ind.
Premier Warm Air Heater Co.,
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Richardson & Boynton Co.,
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Robinson Furnace Co., A. H.,
Massillon, Ohio
Robinson Furnace Co., Chicago, Ill.
Rybolt Heater Co., Ashland, Ohio
Schwab & Sons Co., R. J.,
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Slimplex Furnace Co.,
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Standard Furnace & Supply Co.,
Omaha, Neb.
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St. Louis, Mo.
Success Heater Mfg. Co.,
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Thomas & Armstrong Co.,
London, Ohio
Thatcher Co.,
Chicago, Ill.
XXth Century Heating & Ventili-
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Utica Division of Richardson &
Boynton Co., Utica, N. Y.
Waterman-Waterbury Co.,
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Western Steel Products Co.,
Duluth, Minn.
Wise Furnace Co.,
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- Gas (Nitrogen).**
Linde Air Products Co.,
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- Gas (Oxygen).**
Linde Air Products Co.,
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- Glass—Wire.**
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- Grilles.**
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Hart & Cooley Co.,
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Independent Reg. Co.,
Cleveland, Ohio
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.
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- Handles—Soldering Iron.**
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- Hangers—Eaves Trough.**
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- Heaters—Cabinet.**
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Mueller Furnace Co., L. J.,
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Waterman-Waterbury Co.,
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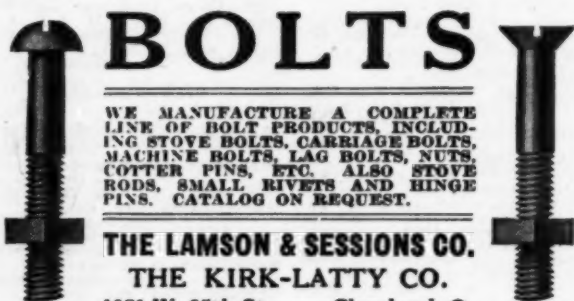


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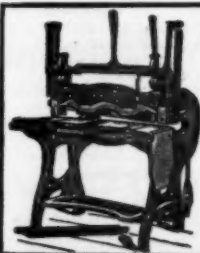
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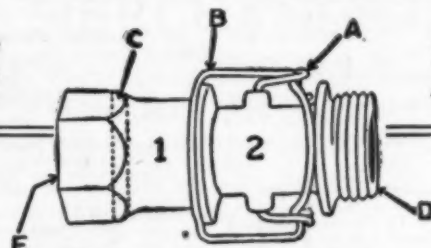


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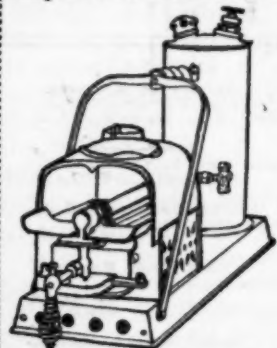
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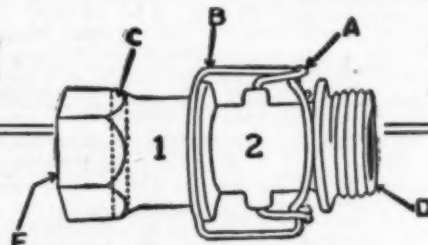
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- Roofing—Zinc.**
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- Rubbish Burners.**
Hart & Cooley Co., New Britain, Conn.
- Sal-Ammoniac.**
Special Chemicals Co., Waukegan, Ill.
- Schools—Sheet Metal Pattern Drafting.**
St. Louis Technical Institute, St. Louis, Mo.
- Schools—Warm Air Heating.**
National Heatcraft Institute, Peoria, Ill.
St. Louis Technical Institute, St. Louis, Mo.
- Screws—Hardened Metallic Drive.**
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Parker-Kalon Corp., 354 West 13th St., New York
- Screws—Hardened Self-Tapping, Sheet Metal.**
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Parker-Kalon Corp., 354 West 13th St., New York
- Screens—Perforated Metal.**
Harrington & King Perforating Co., Chicago, Ill.
- Shears—Hand and Power.**
Marshalltown Mfg. Co., Marshalltown, Iowa
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Unishear Co., Inc., New York, N. Y.
Viking Shear Co., Erie, Pa.
- Sheet Metal Screws—Hardened, Self-Tapping.**
Parker-Kalon Corp., 354 West 13th St., New York
- Sheets—Black and Galvanized.**
Armco Distributors Ass'n of America, Middletown, Ohio
Burton Co., The W. J., Detroit, Mich.
Central Alloy Steel Corp., Massillon, Ohio
Inland Steel Co., Chicago, Ill.
Merchant & Evans Co., Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Taylor Co., N. & G., Philadelphia, Pa.
Wheeling Corrugating Co., Wheeling, W. Va.
- Sheets—Iron.**
Armco Distributors Ass'n of America, Middletown, Ohio
Central Alloy Steel Corp., Massillon, Ohio
Merchant & Evans Co., Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
- Sheets—Tin.**
Merchant & Evans Co., Philadelphia, Pa.
Taylor Co., N. & G., Philadelphia, Pa.
- Sheets—Zinc.**
New Jersey Zinc Sales Co., The, New York, N. Y.
- Shingles and Tiles—Metal.**
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Wheeling Corrugating Co., Wheeling, W. Va.
- Shingles—Zinc.**
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
- Sifters—Ash.**
Diener Mfg. Co., G. W., Chicago, Ill.
- Sky Lights.**
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
- Snips.**
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
- Solder.**
Chicago Solder Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
- Soldering Furnaces.**
Burgess Soldering Furnace Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Quick Meal Stove Co., St. Louis, Mo.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
- Soldering Supplies.**
Special Chemicals Co., Waukegan, Ill.
- Smoke Pipe—Cast Iron.**
Waterloo Register Co., Waterloo, Iowa
- Specialties—Hardware.**
Diener Mfg. Co., G. W., Chicago, Ill.
Hessler Co., H. E., Syracuse, N. Y.
Fanner Mfg. Co., Cleveland, Ohio
- Stagnary.**
Friedley-Voshardt Co., Chicago, Ill.
Gerock Bros. Mfg. Co., St. Louis, Mo.
- Stove Pipe Reducers.**
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
- Stoves—Camp.**
Quick Meal Stove Co., St. Louis, Mo.
- Stoves—Gasoline and Oil.**
Quick Meal Stove Co., St. Louis, Mo.
- Stoves and Ranges.**
Quick Meal Stove Co., St. Louis, Mo.
Thatcher Co., Newark, N. J.
- Tacks, Staples, Spikes.**
American Steel & Wire Co., Chicago, Ill.
- Tinplate.**
Burton Co., The W. J., Detroit, Mich.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Taylor Co., N. & G., Philadelphia, Pa.
- Tools—Tin Smith's.**
Bertsch & Co., Cambridge City, Ind.
Burton Co., The W. J., Detroit, Mich.
Dries & Krump Mfg. Co., Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Marshalltown Mfg. Co., Marshalltown, Iowa
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
Viking Shear Co., Erie, Pa.
Whitney Mfg. Co., W. A., Rockford, Ill.
Whitney Metal Tool Co., Rockford, Ill.
- Torches.**
Burgess Soldering Furnace Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Quick Meal Stove Co., St. Louis, Mo.
Ryerson & Son, Inc., Jos. T., Chicago, Ill.
- Trade Extension.**
Copper & Brass Research Association, New York, N. Y.
Sheet Steel Trade Extension Committee, Pittsburgh, Pa.
- Trimnings—Stove.**
Fanner Mfg. Co., Cleveland, Ohio
- Ventilators.**
Aeolus Dickinson Co., Chicago, Ill.
Akrot Ventilators, Inc., Chicago, Ill.
Arex Company, Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Friedley-Voshardt Co., Chicago, Ill.
Kernchen Co., Chicago, Ill.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Standard Ventilator Co., Lewisburg, Pa.
Sturtevant Co., Boston, Mass.
- Ventilators—Ceiling.**
Hart & Cooley Co., New Britain, Conn.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Tuttle & Bailey Mfg. Co., New York
Sturtevant Co., B. F., Boston, Mass.
- Windows—Steel.**
Lupton's Sons Co., David, Philadelphia, Pa.
- Wire—Electrical.**
American Steel & Wire Co., Chicago, Ill.
- Wire Hoops.**
American Steel & Wire Co., Chicago, Ill.
- Wire Rope.**
American Steel & Wire Co., Chicago, Ill.
Zinc, Philadelphia, Pa.
New Jersey Zinc Co., The, New York, N. Y.

WANTS AND SALES

Yearly subscribers to the **AMERICAN ARTISAN** may insert advertisements of not more than fifty words in our Want and Sales Columns **WITHOUT CHARGE**.

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Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wisc.

For Sale or Lease—The best paying furnace business in Chicago, northwest side, with a large stock of castings, galvanized and tin plate and fittings, approximately 600 installations in a year. Seven years in present location. It requires \$5,000 to handle. Do not answer unless you have the cash or good security. Address Q-464, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago.

Wanted — A first-class sheet metal worker with small capital to lease my tin shop. Also have for sale a second-hand stove and furniture store. I am 73 years old and want to retire. Address R-464, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago.

For Sale—Half interest in well established combination sheet metal and plumbing shop. 16,000 population. A rapid growing city in the center of the largest oil field in the world. 70 miles southeast of Oklahoma City. Address J. B. Loveless, Box 207, Seminole, Okla. S-464

Wanted—To buy small tin shop or will work as tinner, plumber or furnace man. Am an all-around mechanic and wish steady work. Address F-464, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

For Sale—Sheet metal and furnace shop in county seat town of 3,500 population in Northeastern Iowa. Good set of tools and good business. Shop 25x40. Address R-463, **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois.

SITUATION WANTED

Married man with sixteen years of hardware experience desires a position in hardware store. I am employed at present, but wish to make a change. References can be furnished by present employer. Address P. O. Box 410, Perham, Minn. B-465

A-1 Plumber and Tinner, good at heating and furnace work wants steady position. Understands the Code and has license. Address S-463, **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago.

SITUATION WANTED

Situation Wanted — First-class sheet metal worker and furnace man; also pattern cutter. Engineering knowledge of warm air heating; familiar with Standard Code. 19 years' practical experience at general work. Desire connection with good clean outfit doing good class of work. At least ten months in year and preferably steady year round. Address P. O. Box 175, Elmer, Mo. L-464

Situation Wanted — By sheet metal worker and furnace installer. Have had 16 years' experience at general sheet metal and roofing work. Am steady and of good habits. Wish steady position with reliable firm. Can come at once. State wages. Address A. R. Burrows, Box 166, Coloma, Mich. K-464

Situation Wanted—By first-class tinner and furnace man. Can do inside and outside work. 25 years at trade. Nothing but steady job the year around. Am married. Can do anything that comes in any tin shop. Address W. J. Mack, Route 2, Box 90, St. Charles, Ill. G-464

Situation Wanted — By an all around practical tinner with 25 years' experience. Can take charge and run shop. Can read blue prints and estimate all kinds of work. A general shop preferred. Can come at once. Address P. S. McCuffin, Inkster, Mich. H-464

Position Wanted—As working foreman by a first class sheet metal worker in all its branches such as may come to a first class shop. Can do pattern drafting, read blue prints and figure work. Have had sixteen years of experience and married. Address W-463, **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois.

SITUATION WANTED

Plumber, steamfitter and furnace man with 18 years' experience wishes to connect with a good reliable firm. Can handle any size job or can run a shop. If you are in need of just such a man get in touch with me. I am married and want a job that I can run as I would my own shop. Do not answer if you do not mean business. Can offer a good, steady and reliable job. Can come any time. State particulars. Address J-464, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago.

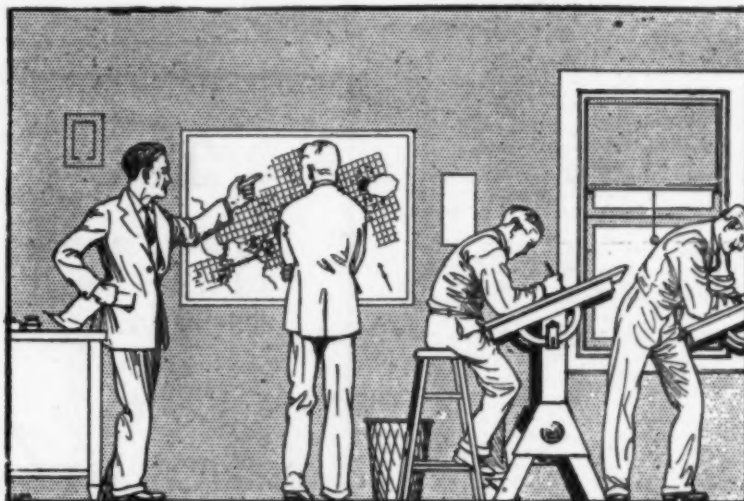
Experienced warm air heating engineer (A St. Louis Technical Institute trained man) desires position as engineer or estimator. Have had 10 years' practical experience and can lay out any job as well as do shop work on both furnace and sheet metal work. Available at once. Address Engineer, Box 325, Rochester, New York. T-463

Situation Wanted—By an all-around handy man—plumbing, steamfitting, tin work, house electric wiring, guttering. Finest work and can also help in a hardware store. 14 years' experience. Address A-465, **AMERICAN ARTISAN**, 620 So. Michigan avenue, Chicago, Illinois.

Wanted—Permanent position by all around sheet metal worker and plumber. Capable as foreman. Good layout and production man. Will also accept factory maintenance and efficiency position. Address K-463, **AMERICAN ARTISAN**, 620 So. Michigan avenue, Chicago, Illinois.

HELP WANTED

Wanted—Experienced furnace salesman. Good proposition. Address Louis Bahcall Furnace Co., Inc., 1010 St. Charles Road, Maywood, Ill. M-464



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Mention **AMERICAN ARTISAN** in your reply—Thank you!

HELP WANTED

Wanted—Sheet Metal Worker—Year around employment to the right party. Prefer a married man around 40 years of age with ability to make and erect quickly and neatly (without grumbling or growling) most any style cornice, skylight, marquee, ventilation or blow pipe work. Only a first class settled workman capable of handling inside and outside work of this nature need apply. Address P. O. Box 123, North Emporia, Virginia. Z-463

Wanted—An experienced Furnace Salesman. One capable of planning and estimating heating systems according to the Standard Code, able to handle replacement work, and figure sheet metal jobs on buildings and from plans. A St. Louis firm offers a steady job to the right man. Address Z-464, AMERICAN ARTISAN, 620 So. Michigan avenue, Chicago, Illinois.

Wanted—Experienced tin shop foreman for superintendent of large shop which manufactures tin pipe and fittings for the trade. Man under 40 preferred, and one who has had factory experience can serve us best. Address D-463, AMERICAN ARTISAN, 620 So. Michigan avenue, Chicago, Illinois.

Wanted—Have good opening for salesmen of ability to sell furnaces and supplies. We want men who can come determined to win. Proposition carries unusual merits. Choice territories open now. Address O-464, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago.

Wanted—Furnace Salesman. Some one who knows the selling game, both steel and cast. Address Y-463, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

TINNERS' TOOLS

Wanted—An 8-foot brake in good condition. Also set of tinner's tools. State full particulars and lowest price. Address Y-464, AMERICAN ARTISAN, 620 So. Michigan avenue, Chicago, Illinois.

For Sale—Complete tinner's tools, including an 8-foot brake, 30-inch rollers, folders, turning machines and varieties of stakes. Address D-464, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

Wanted—An 8 ft. or 10 ft. Brake in first class condition. Reasonable price. State full particulars please. P. O. Box No. 818, Federal Building, Milwaukee, Wisconsin. X-463

Want to buy a deep throat Hand Lever Shear, also deep throat hand lever punch, capacity No. 10 gauge steel. Address Dean Specialty Works, San Antonio, Texas. X-464

For Sale—One 30-inch Peck, Stow & Wilcox Pipe Grooving Machine in first-class condition. Price \$25.00 C. O. D. Address T-464, AMERICAN ARTISAN, 620 So. Michigan avenue, Chicago, Illinois.

Wanted—One 8 or 10-foot brake. Address Griebelow-Weirich Co., Owen, Wis. P-464

MISCELLANEOUS

Truck for Sale—Model S International truck, run less than 10,000 miles. Will sell for \$300 cash. Address B. F. Jones, 112 Grant street, S. W., Massillon, Ohio. W-464

BOOKS

Exhaust and Blow Piping, by Hayes—Exhaust and Blow Piping has had an unusually big demand. A fresh supply is now off the press and is in our hands for immediate delivery. It has an invaluable treatise on the planning, cost, estimation and installation of fan piping in all its branches giving all necessary guidance in fan work blower and separator construction. 159 pages, 5x8. 51 figures. Cloth, \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

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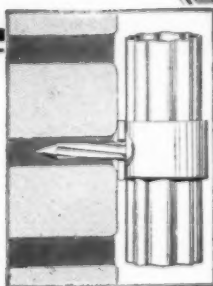


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